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Addressing itself to factors leading to the misdiagnosis of the brain damaged child and the aphasic child, the Pathway School's Second Annual Institute considered the differences between the following: the aphasic and the aphasoid child; the sensory aphasic and the deaf child; the psychotic and the psychotic aphasic child; childhood brain damage and psychogenic learning disability; brain damage and mental subnormality; active intracranial pathology and conversion hysteria; and perinatal and ongoing brain damage. Papers presented are Lillian F. Wilson's "Assessment of Congenial Aphasia" and Sheldon R. Rappaport's "Diagnosis, Treatment, and Prognosis." Panel discussions and question-answer periods on aphasia and brain damage are transcribed; conclusions are reported; a 53-item bibliography is provided. The 10 case histories which served as discussion subjects for the institute are given. (EB)

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CHILDHOOD APHASIA
and
BRAIN DAMAGE: Volume II

Differential Diagnosis

THE
PATHWAY
SCHOOL

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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CHILDHOOD APHASIA and BRAIN DAMAGE: Volume II

Differential Diagnosis

Edited by Sheldon R. Rappaport

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Preface

In keeping with its purpose to further understanding of the aphasic child and the brain-damaged child, The Pathway School's Second Annual Institute addressed itself to key factors which lead to their misdiagnosis. This publication is the edited transcript of that Institute, held on March 23 and 24, 1964.

The intent of that Institute was to identify the salient points of difference between an aphasic and an aphasoid child, between a sensory aphasic and a deaf child, and between a psychotic and a psychotic aphasic child. It also strove to identify the essential differences between the effects of childhood brain damage and a psychogenic learning disability, brain damage and mental subnormality, active intracranial pathology and conversion hysteria, and perinatal and ongoing brain damage.

Ten case histories served as the foci of discussion. For the intrepid reader seeking detailed data, those histories will be found in the appendix to this volume. To him it will be evident immediately that the two days of the Institute provided insufficient time in which to discuss each case in detail. To all it will be apparent that the hope of exhausting that area of differential diagnosis which involves aphasic and brain-damaged children would require time, assiduity, and other components in such abundance as to be quixotic. Thus, it is gratifying to present this monograph which does identify some key points of differentiation and does spell out a frame of reference which serves to enhance both diagnosis and treatment. Hopefully, the reader will derive equal gratification from it, or, short of that, some measure of enlightenment and sense of direction concerning the differential diagnosis of aphasic and brain-injured children.

For the contents of this monograph we are indebted to those Philadelphia psychiatrists who supplied the detailed information of some of the cases; namely, Dr. Robert C. Prall of the Eastern Pennsylvania Psychiatric Institute, Dr. Bertram A. Ruttenberg of the Child Study Center, and Dr. Lawrence Temeles of the Albert Einstein Medical Center, Southern Division. We are also grateful to the distinguished panelists and to the Pathway School staff for their pregnant prelections. To the audience, which interrupted hectic lives to come from 130 agencies in nine states and the District of Columbia, we are appreciative of their fine receptivity and questions, which made a significant contribution to the content of the symposium.

Most of all, signal gratitude goes to children such as those described in the case histories, because those unheralded heroes sacrificed their lives on the altar of misdiagnosis so that we could learn from them and thereby fructify the lives of others.

For the excellence with which she accomplished the arduous job of transcribing the 1964 Institute proceedings go thanks to my wife, Florence. For preparing the manuscript go thanks to Pathway's most capable Mary Scott and Sarah Orth. And for his editorial assistance go special thanks to Pathway's Ellwood C. Parry, Jr.

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Assessment of Congenital Aphasia

LILLIAN F. WILSON

Those of us engaged in the assessment of the handicapped child carry a grave responsibility. Too often, attaching a diagnostic label to a child decides his future. The least it decides is how and where he is to be educated. Once placed educationally, the child often is regarded as needing no further evaluation. On the contrary, effective rehabilitation necessitates both caution in diagnostic labeling and continual reevaluation of the child's progress and changing needs. Only then can teaching optimally fulfill the *child's* requirements.

In the medical field, a doctor must make judgments in order to begin treatment. However, he has his patient return periodically for several reasons: to assess changes in the pattern of symptoms, to determine whether unexpected side effects of the treatment have developed, and to obtain new information which might necessitate a change in the treatment program. In the field of education, an ongoing appraisal of the child's changing needs is no less essential.

Initial educational placement, like initial medical treatment, must be tentative, but thereafter the child's responses within the educational program will either substantiate or alter the diagnostic impression. Like the physician, the teacher must be prepared for possible unexpected responses and be ready to modify the educational program accordingly.

In earliest recorded history, abnormal persons, when recognized, were usually excluded from society, although some societies went to the other extreme and venerated those with certain abnormalities. Any substantial attempts to teach the handicapped occurred relatively recently in the history of man. Consider deafness, for example. Aristotle (Baker, 1959, p. 367) maintained that the deaf could not be taught. In the 16th and 17th centuries, Pedro Ponce de Leon, Bonet, and Remires de Carion (Baker, 1959, p. 368) gained considerable fame by successfully educating many deaf Spanish children of noble birth. Schools for the deaf were founded in the 18th century in France, Germany, and England, and, in the 19th century, in America (Brittanica, vol. 7 p. 101). These educational pioneers had only their pupils to learn from and their intelligence to guide them in the development of effective techniques.

In the history of education, the development of a successful teaching method for a particular group of handicapped children has always had an important side effect: some failed to learn as well as others. These then became a new group of "unteachables." When they became numerous enough (or their families influential enough) to attract public and professional attention, new teaching methods were devised and often a new label applied, thus establishing another category in special education. Today we are struggling to develop clearer criteria for the assessment and teaching of such a group of "unteachables:" aphasic children.

Aphasia in children was first recorded by the French physician, F. J. Gall (1835). In the United States, although C. H. Town (1911) wrote an article entitled *Congenital Aphasia*, and the following year George H. Makuen (1912) authored *Mutism in Otherwise Normal Children*, it was not until about 10 years ago that the diagnosis and teaching of aphasic children became of national interest, primarily through extensive publicity given to aphasia by Dr. Helmer Myklebust (1954).

The first department for children with congenital aphasia was established about 1920 at Central Institute for the Deaf, in St. Louis. In due time, a teaching procedure called the Association Method was evolved by Mildred A. McGinnis to fill the basic needs of that group. There are several schools or centers in the United States which specialize in teaching or training aphasic children. Among these using the Association Method are Central Institute, Children's Hospital, Washington, D.C., and, in the Philadelphia area, The Pathway School and, more recently, the Pennsylvania School for the Deaf.

Although the empirical development of teaching methods and the resultant creation of new groups of unteachable children continues, we have today other tools to help us decide the appropriate educational program for a handicapped child. As all of us know, formal testing is no panacea, but reliable tests, carefully administered and conservatively interpreted, can contribute substantially to a more accurate educational assessment of children by helping us to anticipate what to expect.

At Pathway, our diagnostic team secures information through the following studies: (1) case history, which includes the child's developmental data, family relationships, family history of defects, previous educational experiences, treatment, and tests; (2) social development; (3) psychological and, when indicated, psychiatric evaluations; (4) audiological examination; (5) speech and language evaluation; (6) neurological examination; (7) pediatric information. These give us some indication of what to expect from the child. Then there are two steps needed to arrive at a tentative diagnosis of aphasia. One is to determine which youngsters give speech and language performances *unexpected* in light of all the above information. Since, however, this would not enable us to predict the cause of the unexpected responses, we also must examine *how* the child learns speech and language skills.

So far as we know, there are no formal tests to measure how a child learns language. Therefore, our evaluation includes *diagnostic teaching*, which may take one day to several weeks, and after an interim may be repeated. This old, empirical approach of working with the child and accumulating information provides invaluable insights into his learning behavior under specific conditions with specific material.

Aphasia, by our definition, relates to the language skills of reading, writing, speaking, and understanding. Ultimately, the diagnosis of aphasia rests upon the child's deficiency in those skills and upon the methods he needs to learn them. During diagnostic teaching sessions, we primarily work with him in each of these areas and assess his responses. Although we have no formal tests for this procedure, we do use the Association Method, which has been highly successful with aphasic youngsters in the past. Through experience we have come to expect certain qualitative responses from the aphasic child to the language symbols presented under the conditions of this method. When we receive these responses during diagnostic teaching, we tentatively label the child aphasic. Yet all children who *learn* by this method cannot and should not be classified as aphasic.

Before we proceed to the specifics of our topic, it should be stressed also that to diagnose aphasia, one must have a thorough working knowledge both of normal child development and of the expected deviations which occur because of various sensory deprivations found in children. In addition, we need specific points of reference with regard to language. When *we* speak of aphasia, for example, we are talking about both speech and language difficulties and also the classroom techniques found effective in alleviating them. Secondly, we use Miss McGinnis's (1963, p. xix) classifications, as follows:

Class I Motor or expressive aphasia:

1. Intelligence with normal limits
2. Normal hearing and understanding of language
3. Inability to imitate words
4. Inability or limited ability to imitate speech sounds

Class II Sensory or receptive aphasia — word deafness:

1. Normal intelligence
2. Normal or slightly defective hearing
3. Inability to name objects
4. Inability or partial ability to associate names with objects
5. Poor recall of names the child has repeated
6. Inability to interpret or use environmental language

To diagnose motor aphasia requires formal test results, or informal observations of the child's basic skills, to indicate beyond reasonable doubt that his intelligence is not within the retarded range. It requires the child to imitate lip and tongue actions, to see if he has difficulty volitionally placing his tongue and lips in the various demonstrated positions. Also, voluntary or spontaneous attempts at imitation of sounds and whole words help us assess the child's skills in these areas. (Where cerebral palsy is a factor, we may not be able to say with certainty that motor aphasia is the problem.)

In the classroom we expect the motor aphasic to have certain difficulties with writing. These often appear as reversals or distortions of letters in copying or in efforts to recall written material. There also may be reversal of word order within written sentences, and/or omissions of words. Where speech is present, we expect the same sort or error during speech efforts. Generally, however, we do not expect the child with motor aphasia (unless he has had previous teaching) to be able to use meaningful speech sounds for appropriate communication. This youngster is expected to use a repetitive speech pattern, such as bu-bu-bu, du-du-du, or la-la-la, with appropriate voice inflections, in his attempts to express himself verbally.

All the above responses are characteristic of motor aphasia. Although there seem to be no typical nonverbal patterns, apraxia, difficulty in both gross- and fine-motor coordination, and low frustration tolerance are often present too.

The youngster whom we classify as sensory aphasic presents a more complicated problem for educational diagnosis. He may have a hearing loss, which in itself could significantly retard speech and language development, but even so, he does not meet our expectations for learning, when his hearing, intelligence, educational background, and environmental and educational opportunities for acquiring language are considered.

On the list of criteria for sensory aphasia is the "inability to name objects." This is particularly significant when we know that the child has spent a number of years in a school for the deaf or has received other seemingly appropriate education. We try to teach the youngster suspected of sensory aphasia to associate names, spoken by the examiner, with available objects or pictures. We also try to teach him to perform simple verbal commands, through both the whole word approach and the element approach in lipreading. In reading we use the whole word approach to teach him the association and recall of names with objects, and in writing, the broken-up, phonic approach. We expect an inability or partial inability of the child to perform this association task through the whole word approach, either in lipreading or in recall of written material. During written recall activities, we again look for the qualitative errors previously mentioned.

Within the classroom, the spelling and writing errors most often encountered with this receptive, or sensory, group are total omissions of letters or words and occasional reversals of both. However, apraxia or other motor involvements are not characteristic of sensory aphasics. And they have essentially the same difficulties learning to express themselves verbally as do the motor aphasics.

Whereas the motor aphasic child has a primary speech problem, with comprehension of language secondary, both speech and language comprehension are primary problems with sensory aphasic youngsters. However, the factor common to both groups appears to be poor retention and recall of language symbols presented in whole word units. After initial teaching of the speech skills, our major educational task becomes one of making language more meaningful. Drills and lessons which utilize associations of the visual, tactile, kinesthetic, and auditory modalities are essential to assure the transfer of language to less formally structured situations.

In summary, at Pathway a tentative diagnosis of aphasia is based upon formal and informal evaluations. Initial information gleaned by the diagnostic team helps us to determine what speech and language skills to expect. The speech and language evaluation helps us make judgments about the child's functioning skills, and diagnostic teaching provides additional clues, through the youngster's responses to parts of the Association Method, about how language must be presented in order to be retained. Even when all the evidence points to an educational classification of aphasia, the diagnosis is not ended. After the child enters class we continually reevaluate his responses to the structured lessons and note his spontaneous learning patterns in order to confirm our original impression or to refute it, with recommendation for a different placement.

If we are to succeed at the tremendous task of helping these youngsters to achieve their potentials, we must be constantly alert to both expected and unexpected responses in the classroom. Educational classification and treatment must be fitted to the child, and not the child to classification and treatment.

Discussion of Aphasia

Dr. Rappaport: Each panelist now will discuss the case material from the standpoint of his own discipline.

Dr. Adamson: As I review the six cases, several common denominators become apparent. First, all six cases presented both the possibility and the complications of multiple handicaps: i.e., in varying degrees, handicaps in language, mental, social-emotional, and sensorimotor developmental patterns. Second, all six had a period of diagnostic or trial teaching using the Association Method. Third, the diagnostic process for them was not seen as an end in itself, to find an accurate diagnostic label, but as a means to set in motion a continuing program of treatment, education, and habilitation. Fourth, in each case there was some degree of dysfunction in one or more of the primary apparatuses of the ego, including the basic skills of motility, perception, concept formation, and language development (viz., Rappaport, 1964, p. 40 f.).

The suspicion of the presence of more than one handicap in a child should alert the clinician or diagnostic team to plan for a careful evaluation *over a period of time.* One-shot, short-term evaluations in such cases are most often inaccurate and lead the concerned parents down the path of dreary diagnostic rounds. In the presence of a multiply handicapping condition, it is often helpful to view the child's situation as one in which the evaluation and planned treatment program will require months and years, rather than weeks or months, to be accurate and effective. In certain cases (for example, those of Frank, Milt, Fritz, Donald, and Ruth), it might be well to think in terms of a *long-term child-family-community planning service* to meet satisfactorily the emerging needs of these multiply-handicapped children at different epochs in their lives.

In language-disordered children, the use of diagnostic teaching allows for a careful evaluation over a period of time, provides a pragmatic approach to whether or not the child can respond to the Association Method, and may give the child some of the attentional skills he needs before he can respond adequately to psychological tests.

Because the labels so frequently pinned on these exceptional children (e.g., mental retardation, brain damage, autism, and childhood schizophrenia) may increase existing negative family and community attitudes toward them, the diagnostic process needs a psychosocial frame of reference which, from the beginning, includes the parents and other persons concerned with the child's eventual treatment and habilitation. Hersh (1961) observed that a family is under great internal and external stress as long as it contains one member who is insufficient and, therefore, unable to fulfill the culturally expected potential of a family member. The sociologic implication is that the deviant child's insufficiency may make the family's fulfillment neither likely nor possible. Thus, alien or incomplete family relationship transactions, chronic family frustrations, and heightened personality conflicts can best be understood as *family-related,* rather than problems simply due to the child's handicap. One of the most effective ways to anticipate and head off such a mounting crescendo of family stress and misunderstanding is to include a parent counselor as a member of the diagnostic-treatment team. The discipline of social work has made an increasingly significant contribution to this aspect of treatment and habilitation and to the literature describing effective parent counseling procedures for multiply handicapped children (Carswell, 1958; Beck, 1962; Hersh, 1961; Korner, 1961; Kosier, 1957; and Solnit and Stark, 1961).

Our fourth common denominator was the observation that all six children had some degree of ego insufficiency or weakness resulting from a dysfunction in one or more of the primary apparatuses of the ego. In this series of cases, the development of language was the central feature of their handicap and, therefore, a central factor influencing their personality and ego development.

The sequence of normal language development in a child has been ably studied and described by many investigators, including Leopold (1939), Gesell and Amatruda (1947), D. McCarthy (1954), Strauss and Kephart (1955), Piaget (1929), Penfield and Roberts (1959), Mecham (1959, 1963), and McCarthy and Kirk (1961). It is important to highlight briefly several self-organizing experiences which take place concurrently, but with different degrees of primacy, during the process of language development. Strauss and Kephart (1955) have identified these experiences as development of the sensorimotor perception of the environment; the mechanics of vocalization, including the neurophysiology of phonation and audition; and social development, which includes the emerging nonverbal and verbal interactions and the interpersonal relationships developing between the child and the significant persons in his environment. As perceptual development continues in the child, different words are perceived to have different meanings, or symbols, and a process of symbolization becomes established:

> . . . the child becomes able to isolate certain similar

> elements from a number of perceptions and treat these as a unit apart from the total perceptions from which they were abstracted. By this means he builds up concepts. His language helps him greatly in this process since it permits him to hold on to these abstracted elements and group them into a new whole. . . The process of conceptualization begins at about the seventh or eighth year and from there on the child is less and less perceptual in his thinking and behavior and more and more conceptual. . . (Strauss and Kephart, 1955, p. 104).

Although different children have different rates and patterns in the development of language, there is general agreement that most children show the following language landmarks:*

AGE	*LANGUAGE PATTERN*
1 month	Differential crying for discomfort, pain, and hunger.
2 months	Random vocalization; definite reaction to different voices.
2-6 months	Coos as response; coos or crows to express pleasure.
5-6 months	Babbling; experimenting with sound.
7-9 months	Reduplicated monosyllables; "ma-ma" and "da-da."
12 months	Imitation of words with "circular reflex reaction pattern" (by making sounds, stimulates self to make more sounds).
	Normal echolalia; imitation with "blind repetitious parroting."
13-15 months	Expressive jargon; imitation of speech with inflection and fidelity.
11-17 months	Obeys simple commands and prohibitions.
15-17 months	Recognizes names of common objects and parts of his body.
17-24 months	Combines words; short sentences.

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* After Stone and Church, 1957, p. 117, Mecham, 1963, and Blanchard, 1964, p. 612.

24-30 months	Expressive vocabulary of at least 50 words. Uses pronouns: I, me, you. Understands two prepositions: up and on. "Greater use of verb-like words, possessive forms, and prepositions to make comparisons, define boundaries, and express feelings of ownership" (Stone & Church, 1957, p. 123).
36 months	Simple sentences with subject, verb, and object "Egocentric communications" (Piaget, 1929).
42 months	Mastery of b, m, p, h, and w sounds.
48 months	Names all primary colors accurately.
54 months	Mastery of y, k, g, (f), and d sounds.
60 months	Uses speech as social tool and for social communication.
66 months	Mastery of f, (s and z only temporarily) sounds.
78 months	Mastery of v, zh, sh, th, and l sounds.
96 months	Mastery of r, z, and s sounds.
7-8 years	Conceptualization processes underway.

The sequence of language development indicates the close relationship between the developing ego of the child and the multifaceted neurophysiologic and psychosocial determinants of language. The intactness of the central nervous system needed for an ear-voice "feed-back loop" with auditory monitoring of emerging speech seems essential for the development of an orderly speech pattern (Zangwill, 1960).

Subtle psychosocial experiences in the child's environment may allow for language stimulation or deprivation and are an equally significant factor. McGinnis (1963), for example, describes a pattern of language retardation in children who, at the age of 4 to 5 years, hear well but do not talk, and who seem to be indifferent to parental attempts to encourage them. Sometimes they obey commands, respond to suggestions, and may act on cue words in conversation. She observed that these children seldom vocalize or gesture for what they want, in contrast to the child with a motor aphasic pattern. They may occasionally say a word, appear to be startled by having said it, and not repeat it. Although their total social behavior may not differ greatly from children who do talk, it is suggested that they "sometimes have temper tantrums and become obstinate." While descriptively we may refer to these cases as "late bloomers" or as cases with a familial pattern of delayed speech, the cases cited (McGinnis, 1963, pp. 28-29) to illustrate this diagnostic group suggest that mild but subtle psychosocial factors, rather than mental subnormality, may be influencing the rate and quality of the child's language production.

In a recent paper on speech patterns of the mentally retarded, Blanchard (1964) compared the articulation growth pattern of 350 children who had medical classifications of retardation (Heber, 1959). She used as a criterion of articulation age the developmental sequence of consonant sounds established in children without physical or mental handicaps (Poole, 1934; Templin, 1957). Only one child in 10 achieved acceptable adult speech, and five of every seven reached only the 4-year level of articulatory competence, though their chronological ages ranged from 8 to 15 years and their functional IQ's from 27 to 68. Cases of retardation resulting from postnatal cerebral accidents and those in the familially retarded group showed the least deviant speech patterns and were the groups most likely to reach adult standards of articulation. Those with mongolism, mechanical birth injury, and prenatal infection appeared to be the most damaged in their patterns of verbal communication. Nearly 60% registered some characteristics of articulation "thought to be peculiar to the mentally retarded, such as omitting many segments of words, with unusual and sometimes bizarre substitutions for consonants not yet established in their verbal communication" (Blanchard, 1964, p. 613). That study illustrates the difficulty one encounters in differentiating "between children having a predominantly aphasic condition and those having mental retardation with an aphasic component" (McGinnis, 1963).

To help us out of this perplexity, the term mental retardation itself needs clarification. Mental retardation, or, more properly, mental subnormality (World Health Organization, 1954), is characterized by a reduction in the individual's level of intellectual, social, and adaptational competence to less than 70% of that expected for his chronological age. This less-than-70%-of-normal expectation represents an arbitrary medicolegal policy which has become well established in our culture. Thus, mental subnormality is better utilized as a term descriptive of a child's level of function than as a nosological entity.

Our first case, Frank, appears to be a boy whose social development, adaptive behavior, and learning skills were all significantly below 70% of his age expectation. However, diagnostic teaching revealed that (1) to a degree greater than could be accounted for by mental subnormality per se, his comprehension was significantly higher than his expressive speech skills, (2) he could learn to initiate sounds and words in highly structured settings, but not otherwise, and (3) considerable continuous effort was needed to help him correctly execute already learned lip and tongue positions. These considerations pointed to an expressive language disability which, when coupled with mental subnormality, produced an aphasoid condition. To recognize one component without the other could not result in an effective treatment plan.

Milt (Case History #2) is a good example of a child studied over a period of years. Psychological evaluations showed intelligence quotients of 54, 58, 68, 58, and 55 from ages 3-6 to 7-10. These relatively consistent responses, along with adequate special education, substantiate the presence of mental subnormality. The higher Vineland Social Maturity Quotients appear to represent the child's ability to use his social skills to a maximum, plus some "parental halo effect" in the reporting of his social maturity. The question as to whether any expressive language disability is present seems to hinge on (1) the fact that he has no motor-speech difficulty, (2) that he can imitate elements of speech but cannot recall them from written symbols, and (3) that his language comprehension level and general behavior are consistent with his overall mental, social, and adaptational levels (approximately 60% of his chronological age). Here again, to assume an aphasic component because of the apparent speech and language difficulty and blindly to expect him to respond as an aphasic child could only have jeopardized his progress.

When diagnosis has a bio-psycho-socio-educational orientation and extends over a period of time in which there is a segment of diagnostic teaching, all members of the diagnostic-treatment team have a common goal. Their team effort then can help the handicapped child within himself, within the family, and within the community to develop those basic ego skills essential for his maximal adjustment and self-fulfillment.

Dr. Goldstein: I have a unique status here, being the only person on the panel who is neither a member of Pathway's staff nor of its Professional Advisory Council. This may be the last time such a thing happens, because many of the remarks I have to make will be purposely pointed and somewhat critical to stimulate discussion and bring out my own ideas.

As I read the case histories, I have certain arguments, particularly against such words as "brain damage" or "aphasoid," and, to some extent, against the incompleteness of the hearing studies. It is useful to make generalizations, but too often in individual cases generalizations break down. Moreover, each of us has his own set of words, which can mean different things to each person involved.

The topic of aphasia is, of course, closely related to hearing *per se*. Often it is not easy to get a hearing evaluation on a very young child, since he may be difficult to test and to deal with. This could limit the audiologic information that we can contribute to the diagnostic picture. We are also faced with the problems of the complexity of the hearing process, of how little is known about it, of how little is known, in fact, about neurologic processes in general, and of how they are related to hearing. Consequently, even though we may take certain discrete measurements of auditory function, we are never quite certain these apply completely to the total hearing process.

When we do evaluate a child, we make two kinds of observations. One concerns his sensitivity to sound. In comparison to children with normal auditory sensitivity, how much more intense does the sound have to be for this particular child to get it at all? Anything less than normal auditory sensitivity is called *hypacusis*. The other kind of observation, difficult to measure, involves faulty hearing, or *dysacusis*. In other words, what can the child do with a signal he does receive, and how well is he able to integrate it into meaningful language? Dysacusis, of course, can come about from disruptions of many parts of the auditory system. We can get faulty hearing, in the sense of a frequency distortion, even with fluid in the middle ear: certain frequencies may come through better than others. Usually, however, we think of a dysacusis as resulting from some impairment of the inner ear or auditory nerve. Speech, to a person so affected, is not so distinct as it would be to us. Loudness dysfunction is often a manifestation of dysacusis. A person may need considerably more intensity than normal simply to perceive a sound, but well above his threshold he may hear the sound as loudly as you and I, although not necessarily as clearly. Pitch distortion may also be evident.

Many things can interfere with the signal sent to the central nervous system, and if the signal is not perfect, the central nervous system has a difficult job handling the auditory information — probably more difficult than supposed. To demonstrate the effects of a hearing loss, speech has often been recorded to eliminate some of the high frequencies that are usually inaudible to a child with an inner ear or neural problem. When that filtered speech is played back to normal listeners as a demonstration of what sound is like to a person with dysacusis, the normal ear more easily fills in the missing parts than does the defective ear. A much more distorted signal is probably sent to the brain of a hearing-impaired child. We cannot, therefore, make the simple inference that as long as all the acoustic portions of the signal are supplied, the inner ear can pick it up and send it to the brain normally. In other words, we must not jump to the conclusion that brain damage is solely responsible for faulty interpretation of the signals it receives.

If only the central nervous system is affected, there is no hypacusis. The ears, the brain, the entire nervous system remain as sensitive as ever. If the brain cannot handle the signal appropriately, however, even though it receives it undistortedly, we must look for the findings Miss Wilson alluded to: discrepancies between what we expect the inner ear to receive and send to the brain and what the brain can take care of by itself. There are tests which can make this kind of distinction in adults, but with children we can only make inferences, and here we run into trouble. Since I am oriented to hearing, I usually give the benefit of the doubt to the hearing problems, until I can be convinced that the brain itself is not properly integrating the signals sent to it.

Another point made by Miss Wilson should be stressed: ongoing diagnosis. Too often the diagnostic label is taped over the eyes of the teacher who works with the child. Then, although the child may be quite variable, the teacher may see only the fixed printing on the label. Too often I have unfortunately said, "Since the child does such and such, let's say he is aphasic." The school system accepts this and then interprets everything the child does as confirmation. For example, the fact that the child only occasionally picks up an incidental sound is interpreted to mean he has normal but variable hearing, thus "confirming" the original diagnosis of aphasia.

The ongoing evaluation should focus not only on the child's language or psychosocial development, but also on auditory sensitivity. We are beginning to recognize rather large groups of children who seem to be born with normal auditory capacity which deteriorates over a period of time. The answer the diagnostician comes up with in such a case depends to a large extent on when he sees the child. The diagnostician may not be making an error, only describing the child as he sees him at that particular time; and what he infers at one time, he may not be able to infer later. Unless we have repeated measures of the child's hearing, we cannot know for certain whether it has deteriorated.

When hearing does deteriorate, understanding of speech is well below what one might anticipate from the hearing alone. The patient seems to have auditory sensitivity, but no understanding; he seems to have the psychic stability, the intellectual capacity, a satisfactory home life and total environment, and yet he neither perceives nor learns from the sounds he does hear. By the process of elimination, this indicates an almost certain diagnosis of aphasia. Although the patient's sensitivity may be close to normal, understanding of speech simply is not there. Nevertheless, I believe that in many children with deteriorating hearing, that same lack of understanding is strictly on a peripheral basis, due to the signal not being transmitted normally to the brain, even though it can be perceived from the standpoint of loudness. This behooves us to look most carefully at each child audiologically.

To go back to my original statement, I cannot make generalizations at this point about the six cases presented, because the hearing results, if any, were inconclusive. In the ensuing discussion I hope to find out how the hearing problems of those individual children relate to some of the things I have mentioned.

Dr. Rappaport: Thank you, Dr. Goldstein. I am sure we shall amplify the case material somewhat. Your warning that your approach was going to be so different from ours reminded me of the three monks who were sworn to silence, with the privilege to speak only once a year on a feast day. One monk after the other indicated an urgent need to speak. Each was granted his wish on the feast day of three successive years. When the great day arrived, the first monk said, "I hate oatmeal." The next year, the second monk said, "I love oatmeal." When his turn came, the third monk said, "I can't stand all this bickering over oatmeal."

Dr. Prall: I would like to discuss how the children described in the case studies may have reacted emotionally to their respective handicaps. To develop normally a child must learn to relate in a warm and effective fashion to a significant grownup, usually the mother. Later, the teacher must also have a close working relationship with the child to be able to teach him. The case histories indicate how difficult it was for the teaching staff to develop a close relationship with some of the relatively disturbed children, which, incidentally, accounts for the lack of rapid progress by some of them. Ruth, for example, will progress only very slowly because of her basic difficulties in relating.

How does a child develop a normal relationship? It is presumed that at birth he has no particular relationship with the outside world. He is mainly interested in his own satisfactions: a full stomach, warmth, and relative comfort. Within a few months the child begins to respond to people in his environment by smiling, cooing, and the series of vocalizations Dr. Adamson described so well. After he becomes aware of the outside world and develops vision, hearing, and other sensory means of responding to people, he moves into the second stage of emotional development, in which both mother and child derive mutual satisfaction. However, when the child has a developmental problem, such as loss of hearing, sensory or motor aphasia, infantile autism, or any other severe handicap, he may not move on from the *normal autistic* phase (Mahler, Furer, & Settlage, 1959) to the next, the *symbiotic* phase. Instead, he may remain fixated at the level of early autistic patterns. This constitutes a barrier to his further development, because a child does not spontaneously learn to speak, smile, be happy and comfortable with people, and develop social skills if he does not have someone with whom to relate.

In Case Histories #5 and #6 something went awry early in life, causing severe delays in development. What happened to these children happens to a lesser degree to most youngsters who have severe handicaps, including many aphasics. I do not mean that there are no aphasic or otherwise handicapped children who grow up relatively happy. There may be, but most of the children we see in consultation have emotional difficulties — perhaps because only the disturbed ones are referred for psychiatric consultation. Nevertheless, when there is a handicap in a child's developmental equipment, emotional barriers arise because he often cannot see or hear the maternal ministrations.

The parental response also is of great significance. If the child does not respond, does not smile, coo and babble, and say *mama* and *dada,* the parents may do one of two things: either put unconscious and subtle pressures on the child to begin to perform, or gradually withdraw their interest and affection. Thus, the child's lack of response, due to some organic or sensory defect, leads to parental lack of response, and this in turn causes the child to develop a secondary withdrawal. A vicious circle is established: the less response in the child, the less the response from the parents.

What are some of the problems which may result? First, we frequently see patterns like Donald's. He is described as having severe temper tantrums when frustrated or limited. When a child has a sensory or motor defect, parents tend to go easy on him. They fear their own aggressions or feel that he has so many problems, it would be wrong to be consistent or set limits. Because of their own sense of guilt, which may be partly unconscious, they also may be afraid that they have *caused* the handicap or damage. Hence, we need to help parents to set limits and to be consistent and firm in handling their handicapped children early in life.

Parental withdrawal of interest, inability to be consistent and firm, or over-concern and putting extra pressure on the child may also lead to exaggerated rebelliousness and stubbornness. Donald, for example, at 5½ was still not toilet trained, was smearing feces, and was a difficult child to manage. We know that all children normally go through an anal rebellious stage, around 2 years of age, to see if they are more powerful than their parents and if they can get their own way with grownups. Usually, with patient handling, they work out of it all right. However, the handicapped child often shows *prolonged* resistance and rebelliousness, due to a fixation at the early anal-resistive stage.

Another handicapped child may exhibit passive, withdrawn, and overly-obedient behavior. Teachers prefer such youngsters because they cause less trouble. The rebellious ones, by causing trouble, are referred to psychiatric clinics, but often the withdrawn, shy, or retiring child, although more disturbed than the one who can fight back, is overlooked. The withdrawn child, fixated at the earlier stage, where he is compliant and passive, is more difficult to contact and treat. The term *primary lack of motivation* has been used by some authors to describe such children. The passivity goes back, in part, to the time when the parents, withdrawing their interest and affection, were unable to encourage the child to try. Another factor causing passivity is fear of and reaction to failure. For example, in the sixth case, Ruth was frightened by her own failures to talk or to perform, showing that children become frustrated not only when they do not get what they want from their parents, but also when they cannot get the performance they want from themselves.

All children like to do things for themselves; they gain great satisfaction and ego strength from accomplishment. However, the child who cannot speak, for example, shows great concern because he knows that others can. He watches the expression on his little brother's face as he does things with his mouth the patient cannot do; then he sees his mother's face, and realizes she is responding to the brother in ways she does not respond to him. When mother has withdrawn her affection from him, and younger siblings catch up, the defective child begins to feel frustrated, and either rebellion or passivity may set in. In the cases under discussion this sort of subtle psychopathology apparently started in early childhood.

Another important aspect of the child's emotional development is *superego* formation. This involves the development of conscience, or an inner sense of limits and self-control. A child with inadequate superego development cannot possibly gain from classroom instruction as disciplined as the Association Method, and, as some of the case histories indicate, may need preliminary help with emotional development. He must have sufficient ability to relate with his parents and be able to transfer this to his teachers before he can take directions. Ruth, for example, was restless, agitated, distractible, and had a short attention span. She was expelled from one of our local schools for the deaf because of her inadequate superego development. With treatment, she improved, and can now sit still for a while and gain from the teaching methods used at Pathway's afternoon clinic.

Superego development is not based only on punishment or deprivation — on whether permission to watch TV or his allowance is taken away — but primarily on the child's forming a good, close relationship with his parent or parent substitute. He begins to obey and conform because he likes that adult and wants his love, not because he fears punishment. Superego development is aided by the process of *identification,* in which the child incorporates parental standards and goals. When both child and parents are mixed up, identification problems and behavior disorders result, such as we see frequently in our clinics. Disorders in identification occur in children with sensory and motor defects more commonly than with normal children, because the parents of the former feel guilty, confused, and incapable of being consistent and setting limits with the children. As a result, superego development is usually delayed, posing a severe problem in teaching and training the child.

Still another factor in the child's emotional reactions is the development of *object constancy.* In normal development the child reaches the stage where he can maintain within himself an image of a person, such as mother, that is constant and stays with him. This is essential. The small child who has not as yet developed object constancy does not have this firm image of mother within himself, so that when she first leaves him at nursery school he is scared he will never see her again. He also has great difficulty accepting relationships with other significant adults, for only when he has a strong picture of mother in his inner mind can he venture into the world and deal with other people. The disturbed children we see, whether they have organic defects or not, usually show delayed object constancy in the form of massive separation anxiety and difficulty relating to new people.

Ruth, both deaf and retarded, was developing slowly when, at age 3, her mother died. This traumatic event and being cared for first by a neighbor for nearly a year and then by a series of baby sitters while her father worked caused Ruth to regress to the level of early infantile autism. It was extremely difficult to break into that pattern and gain any relationship with her because she was so afraid of being hurt again. Not having within her a firm image of a loving and giving mother, she resisted the temptation of relating to another person for fear of starting a new relationship only to have it shattered too. For lack of a firm image of someone kind and protective, trust was lost, and for lack of trust, the ability to relate to teachers was lost.

Dr. Rappaport: Thank you, Dr. Prall. Before we leave the personality development of the child, I would like to repeat a question frequently raised by parents: "Why can't I simply *make* my child learn what I want him to?" The true translation of that is, "Why can't my child learn by fear?" If you will allow me an oversimplification, a child acquires self-control over three basic stages of ego development. These are exemplified in toilet training. The child at first refuses the potty. Then, while she is present, he uses it as his mother wishes him to. During that stage, if she is called to the telephone while he is ostensibly occupied on the potty, he reverts to the earlier stage and soils. Only when he truly internalizes what mother wants him to do, making her expectations part of his own ego ideals, is her presence no longer essential.

In the first stage, nicely elaborated on by Dr. Prall, the child refuses to comply with parental demands. In the second, he attempts to follow parental wishes to maintain the parent's love. If the child's experiences have been such that he does not value that love, he either will not want to internalize the parental goals, or will feel compelled to fight against them. Then he cannot get to the third stage of ego development in which what the parent wants, through internalization, becomes part of his own self-expectations. Hence, a parent — and later a teacher — can beat or apply other punitive measures to the child, and *can* make him conform to a certain degree, but *cannot* get him to *want* to do what is expected when the feared person is not present.

Returning to the problems of differential diagnosis, I turn to Dr. Goldstein to discuss the audiological data in Cases #3 and #4.

Dr. Goldstein: In the third, Fritz was said to show at age 3 "... inconsistent sound with 'good and ready localization down to 20 db.' " The conclusion is that this "... may have some auditory aspects, but the basic problem seems to be an aphasia. . ." When Fritz was 6½, the report states "... his marked inadequacies in listening and in auditory perception because of disinhibition and inattention were noticeably lessened under amplification." Therefore, a binaural hearing aid was prescribed.

The first statement does not really tell us how much this child could hear at age 3. He could be hearing and localizing the low-frequency components of speech down to 20 db, but could have at least a 30 to 40 db hearing impairment in the speech range. On the basis of this alone, however, we could not say whether he was hard-of-hearing or had normal sensitivity.

In the matter of amplification, we know that in some institutions the hearing aid is used reluctantly if at all, while in others it is used rather freely on a child having little if any impairment, with the rationale that it tends to bring out the foreground from the background. I would argue against using the hearing aid for this purpose. If you have ever tried listening through an aid, you know that the background noise, as well as the foreground, is amplified. Attempts to bring out the foreground through amplification usually fail. When the upper limits of the hearing aid are reached, speech becomes distorted without being better amplified, because the softer background noises grow louder and become homogenized with the speech.

In addition to this practical consideration, a theoretical one is involved. It is assumed that the visual concept of figure-ground distinctions can be carried into the auditory realm, but the auditory system is designed for temporal, not spatial, analysis. To achieve in amplification the equivalent of visual figure-ground distinction, the temporal sequence of the sounds would have to be altered, and this the hearing aid does not do.

To return to Fritz. At 7½ "... the responses to pure tone were all within the 0 to 10 db level." Was the hearing aid continued then, and if so, why, and with what effect? Did his listening improve or deteriorate? We are left with limited information.

When his hearing was next measured, there was a loss sizable enough to cause considerable speech and language impairment. What was the basis for previously saying he had good sound sensitivity? Did he have good sensitivity or were the audiometricians not sufficiently observant?

Continuing with his history we find ". . . with daily practice Fritz showed good retention and recall for the material presented. . ." This, of course, is not typical of aphasia.

Another audiometric lesson to be found here concerns the concept of distance in relation to hearing. If we move back a certain distance our voice is softer. During his first semester at Pathway, Fritz was able to respond auditorially at a distance of one to three feet, whereas during the second semester, he could respond at eight feet. Even at the extremes of one and eight feet, he could show only an 18 db improvement, and that solely on the basis of acoustic considerations, and usually reverberations within a room could of themselves reduce this improvement. Moreover, normal voice fluctuations can exceed an 18 db range, so we cannot use the increased distance as a reliable measure of improvement. More precise audiometric measurements are desirable and, I contend, can be made with reasonable certainty on children of any age. The younger the child. the greater the range of uncertainty of the *tester* — not the child.

The conclusion in Fritz's case is that: "In view of his interest and effort to use speech for communication, his demonstrated ability to use his residual hearing to discern language under specified formal teaching conditions, and his inability to learn language spontaneously through lipreading, he demonstrates a speech and language disability beyond that which can be accounted for on the basis of hearing loss alone." Perhaps there are observations the skilled eye of the teacher and the clinical artistry of the diagnostician can add, but from the history, this child demonstrates nothing that cannot be accounted for on the basis of hearing loss.

In the fourth case, which is intended as a contrast with the third, the conclusion is that the child is deaf. My comments here are brief. The patterns of children who are deaf, but have no other problems, are usually consistent. However, because they are consistent in the case of Ira does not mean that Fritz's inconsistencies *alone* are sufficient for the initial label of aphasia. So many things can be accounted for solely by hearing loss, or intellectual deficit, or the way the child is brought up, as discussed earlier, that the diagnosis should be, and literally was in Fritz's case, determined by ongoing teaching.

Dr. Rappaport: I would like to add another point to your valuable comments; that is, that diagnostic information such as is quoted in these cases typically lacks completeness both in detail and follow-up. All of us, whether in a private or public agency, should adopt the concept of ongoing diagnosis. We should keep some record of what happens after the initial diagnostic impression. Whether it was right or wrong is not important. What is important is to accrue a sufficient fund of observations to enable us to provide each child with the treatment program most beneficial to him. Such a program cannot be selected accurately ahead of time, because it is a dynamic, not a static process. As Dr. Goldstein said, the dearth of material available at a given time in the life of a child makes it difficult to say that we know all the facts, or even the major facts, about his problem's etiology. Therefore, the purpose of the initial diagnosis should be to provide enough information to indicate the child's *greatest needs at that time*. Then, as his responses are observed and manipulated during the course of treatment, much more can be learned about his total constellation of needs and how they best can be met.

Miss Wilson: To answer a question Dr. Goldstein raised, when Fritz came to us he had a hearing aid. However, he was so upset by his lack of success in second grade, he refused to wear it. To help him adjust to coming to a new school, we allowed him to leave it off.

In connection with Dr. Goldstein's point that the aid does not help figure-ground distinction, as part of the Association Method we use somewhat old-fashioned techniques for training hearing, but one of them *does* change the temporal sequence. In presenting sounds and words to the child, the teacher breaks them up by saying them slowly and blending them over a longer period of time. It is talking in slow motion.

The statement about Fritz's good retention and recall should have added that it came about *only with daily practice*. That, in my experience, is typical of aphasic children. As for conclusions, we disagree.

Dr. Goldstein: We have no real disagreement. We can only say we have insufficient information in the case history to reach a mutual conclusion.

Dr. Rappaport: Dr. Goldstein, from your experience with hard-of-hearing, deaf, and aphasic children, can you tell us what *you* regard as the criteria for differentiating the child who has a preponderantly aphasic component from one with only a hearing disability?

Dr. Goldstein: I think Miss Wilson spelled it out. The key word is *discrepancy* — between what is expected and what is found. Let us assume there is adequate information about the child's intellectual and emotional capacities and total environment. Let us further assume that these are insufficient by themselves to have brought about the speech and language problem. Then it becomes simply a matter of diagnosis by elimination. The audiologist can measure a young child's hearing levels, but cannot easily measure dysacusis. If he finds normal auditory thresholds, and everything else seems to be intact, he has sufficient criteria to say the child deserves to be educated, at least initially, as an aphasic. If he finds a hearing impairment that is not so great as to be unmeasurable, the problem of differentiating becomes more difficult. Again assuming that all other factors are within normal limits, when the child is not orienting and alerting to sound properly, is not as consistent in his responses to sound as expected, is not vocalizing the words a child of his age and understanding should, then, with a little less certainty than with the previous child, we conclude that he probably has, in addition to his impairment of auditory sensitivity, some problem in handling language. This we call aphasia. If another child's hearing loss is so profound as to be unmeasurable, if he responds, for practical purposes, only to tactile stimuli, the audiologist's job is exceedingly difficult. We compare his responses with those of deaf children of an equivalent age and guess — at that point it is no more than a guess. The teacher then becomes the most important diagnostician.

The question of what we call aphasia becomes important here. Are we talking about a rigid classification or an educational channel in which to place a child? When I talk about aphasia, I usually imply the latter; but who knows, really, what is going on in the brain of any child who has a central nervous system impairment?

I would like to take this opportunity to speak about nomenclature. For example, *aphasoid* has become, to use Miss McGinnis' delightful expression, an "evasia." The suffix *oid* means "like something else." If you know what it is like, why not name it? In the case reports there was an implication that aphasoid meant language plus some other problems, and mental retardation was specifically referred to as the major complicating factor. Why not call it *retardoid* rather than aphasoid?

Interpretation of the word *aphasia,* itself, is a bit foggy. If we use it narrowly to refer just to language and language symbols, we may leave out, for example, the child who, because of some disturbance in the primary auditory pathways, does not have good integrating signals with which to work. If sound is not interpreted normally, there will be some obstacle to the development of language. On the other hand, if the cause of the child's difficulty truly involves *language symbols,* then he may have difficulty with them in any modality. If it is solely an auditory problem which led to the failure to form language symbols, I do not know that we have a right to call it aphasia, except in the broad sense meaning the absence of language. My only reason for bringing this in now is to emphasize the complexity of the problem confronting the audiologist when he sees a very young child. Solely on the basis of auditory tests and a brief look at the child's language functions, he cannot say, by himself, that this is an aphasia rather than an intellectual deficit.

Dr. Rappaport: I am glad you contrasted aphasoid and retardoid, which is a clever term. At Pathway we intend the same meaning of aphasoid as does Miss McGinnis (1963, p. 35): ". . . aphasia can exist in the presence of mental retardation, but to use the term aphasia without qualification leads to confusion. We refer to such children as aphasoid, which to us indicates a complication of conditions that will influence prognoses. . ." In this sense, aphasoid means that the primary component of the problem is this complex which we label aphasia, and secondary to it, but also important, is a degree of retardation. A youngster who had difficulty in language development primarily on the basis of severe retardation would not be considered aphasoid. The first two cases were presented with the hope of illustrating this distinction.

Dr. Goldstein: That is fine providing consistency is maintained. Often a child is incorrectly said to have an aphasoid *component*. He may have an *aphasic* component, but aphasoid refers to the total picture.

Miss Wilson: I would like to ask Dr. Prall a question. Setting limits when teaching Donald, described in Case #5, often brought on terrific temper tantrums because he was unwilling or unable to accept them. The Association Method inherently requires setting limits. It introduces to the youngster something we want him to do, such as look at a picture. When we ask him to produce a single sound there is only one correct response, and that too sets a limit. Such requests were extremely disturbing to Donald, but not because they were too difficult for him. I did not fuss at or punish him, and I always accepted and praised his best efforts. Even after he became more comfortable with our various activities, he continued to have the same reaction each time the material itself set a limit. Why?

Dr. Prall: You are right that presenting instructional materials to a child constitutes a structured and limiting situation. How he reacts is predicated on how he has responded to other limiting situations in early childhood. For instance, mother may have wanted him to eat instead of throwing his food around, or to become toilet trained at age 2. Presenting him with a letter or a sound or a picture to which he should respond now constitutes something a big person wants him to do, and his reaction is colored by all his previous experiences.

Miss Wilson: One of the identifying characteristics of youngsters like Donald, referred by psychiatric agencies such as yours, is that they do not react to the rewards of mother's praise or of being able to perform. His caseworker and I had to create and build into Donald something — anything — which would serve as a reward for him.

Dr. Prall: Yes, the emotionally disturbed child, particularly if autistic, takes little or no satisfaction out of producing. This is because he has so regressed that he cares little about doing things right. That, of course, makes it much more difficult to educate him. Since Donald had nothing in his earlier life to build on, you had to create new patterns of success before you could teach him anything.

Miss Wilson: Right. This is an important point to those of us in the speech and hearing field. When a youngster comes to us for help in speech, we must begin wherever the child is then. If he has no built-in reward system, we must create one. To allow the child's needs to dictate at least part of what we do may mean using our materials differently, but it will enable us to reach and help a good many more children than we have in the past.

I would like also to amplify a few points I made earlier. I believe that given two children with equal hearing loss, one being hard of hearing only, and the other aphasic as well, intelligent use of hearing aids applies to both. A conservative decision must be made as to *when* a child who needs it should receive a hearing aid, not as to whether he should receive it at all. Many youngsters present complicated problems. We hesitate to introduce an aid until the child indicates readiness to profit from it. In so doing, we are not opposed to hearing aids, only to their premature use under conditions where they might be harmful.

Another point is this: at Pathway, tentatively labeling a child as aphasic is based primarily on his qualitative responses to what he is learning to read, write, speak, and understand. We are teaching the pupils we classify as aphasic how to learn language, how to manipulate its symbols, how to transfer it, and how to generalize it. Sometimes we can identify them accurately during diagnostic teaching over a period of three or four days. At other times, when we are uncertain about a child's placement, we will put him in a class and observe how well he fits and profits over a longer period. The child, we feel, does not lose anything thereby, and we gain important information about his learning skills.

It is easy but unnecessary to get impaled on the dilemma of whether a language disability is due to hearing loss or aphasia. It can certainly be both. The real question is whether the child shows that quality of difficulty which prevents him from learning by ordinary methods; *this* is what makes the aphasic child different. His inability spontaneously to learn speech and language hinges on a difficulty in retention and recall of symbols and on a conceptual difficulty in transferring what he has learned in one situation to another. The teacher may say, "He uses the word in class, but he does not understand that he is to say it also out in the school yard." Or she may say, "I have taught him the word, but he does not use it." Yes, she taught it, but only in one situation. We have to set up a series of lessons which become less and less structured, until the transfer is made. When, after years of this, the child can learn language more spontaneously and use it in diversified situations, we move him into a less specialized school. However, if we become engrossed solely in whether the primary cause of his problem is hearing loss or aphasia, we can not discern his true needs or how to teach him.

I would like to reiterate the need for caution in labeling a youngster, particularly by a diagnostician who cannot follow the child's subsequent progress and thus correct errors of omission or commission in the original report. Furthermore, some professional persons slant or distort their findings in the hope that their "favorable" report will gain a child admission to some school. As a professional group, we must recognize that such a practice ultimately is damaging to the child. We need all the information we can get; the less we have, the more subjective judgments we must make, and the greater the chance for error. When, in addition, information is distorted, the child must surely suffer.

Dr. Goldstein: Last year's conference quoted the articulate comment by Dr. Hallowell Davis (Rappaport, 1964, p. 37) that the diagnosis of aphasia is not made on the basis of pathological anatomy. In aphasia we are dealing with a behavioral aberration in the area of communication, and the diagnosis should be made on that basis. Too often, though, we are unable to make good, rational judgments about a child's capacity in the area of hearing, speech, or language; so we make inferences. One of these — if there is clear-cut evidence of central nervous system dysfunction, be it damage, maldevelopment, or chemical imbalance — is that this child is more likely to have language problems than hearing problems, or is likely to have language problems in addition to hearing problems. We use this information whenever necessary to buttress our opinion that a child shows aphasia rather than, or in addition to, a hearing loss. If we use brain damage as a *cause* of aphasia, how can we talk about brain damage as a behavioral clinical entity? Brain damage is an anatomical, not a behavioral, diagnosis. We do not refer to a child who cannot hear as being "ear-damaged." I would exhort our psychiatric friends to choose a functional rather than an anatomic term, so that we do not talk about a category and compare it with one of its components. There seem to be no terms parallel to the specific auditory dysfunctions of hypacusis or dysacusis.

We also know that unilateral brain damage seldom leads to a specific speech or hearing problem. I have seen people with one half of the brain functioning so badly it later had to be removed, but the malfunction did not affect hearing sensitivity or the understanding of speech, except for difficult speech signals.

The congenitally aphasic children we are dealing with probably have bilateral or global damage. If this is true, any kind of dysfunction can take place, and perhaps all kinds do. Which dysfunction manifests itself most strongly should determine the identifying label we put on it. To classify children we must describe them in terms of their primary symptoms, realizing that we have to cut across many dimensions to do so.

I want to comment a bit more on reports of fluctuation in children's hearing. They seem to be "in" or "out," or their hearing seems to improve as education progresses, casting doubt upon the original audiometric measurements. My feeling is that hearing levels remain the same, but what does change is the clarity of the child's responses and, therefore, the certainty of the observer. For this reason, I seldom talk about a threshold of hearing in a young child. I refer instead to a zone of uncertainty (Di Carlo, Kendall, and Goldstein, 1962); that is, above a given intensity the observer is sure the child is responding, and below another intensity he is certain the child is not. In between there may be a broad range. As time goes on, this zone tends to narrow. If originally the child seemed to hear between 30 and 50 db, and now he hears at 30 db, his hearing has not necessarily improved. Instead, the pattern of response has stabilized, or the observer has obtained a better measurement. Only with a very small group of children does hearing seem to improve. I would contend that this is due mostly to the child's growth in attention and the other skills Miss Wilson referred to. Take, for example, the child who initially can respond only to his teacher. When she tests him, the results are relatively good, while another person gets poor responses. In time, with appropriate teaching, this child can usually generalize and respond equally to all. To my knowledge, this "better" hearing level never extends outside the wide range of the initial zone of uncertainty; that is, it apparently improves only to the limits of what the audiologist first felt the hearing could be.

Deterioration should, of course, also be considered, because more often than not hearing gets worse rather than better. One reason is that it may be a progressive loss on a congenital or hereditary basis; another is that deaf children are just as susceptible to ear diseases or trauma as children with normal hearing.

Dr. Rappaport: The two objections you have to the term brain damage — namely, that it is a generic term which does not refer to a specific clinical entity, and that it describes anatomical, not behavioral, findings — fail to take certain factors into consideration. First, all clinical findings are inferential. We draw inferences from direct observations of behavior, from psychological test responses, from audiometric responses, from EEGs. Moreover, when we know that certain types of neuropathology, confirmed by the neurosurgeon and the pathologist, produce a consistent set of behavioral correlates, and we see these same patterns in other children, I believe we are justified in regarding this behavioral syndrome as resulting from brain damage, without the necessity of verification by inspection of the brain tissue. Secondly, the term brain damage has been used in clinical descriptions for many years, and has had specific connotations attached to it. Although we, at Pathway, have stretched the term to include new conceptual dimensions, to coin a new term might at this time well cause more confusion in professional communication. It seems more appropriate to say that the symptoms once identified as due to perceptual handicaps of brain-damaged children now are recognized as due to perceptual-and-other-ego-skill deficiencies resulting from brain damage.

I also have a question. Is a high frequency loss, as in Case #3, characteristic of youngsters in whom aphasia is the primary problem?

Dr. Goldstein: Yes, but completely coincidentally. Because this kind of audiogram occurs so often in children whom we call aphasic, some have actually come to regard aphasia as a high-frequency hearing loss that leads to dysacusis and, therefore, language disorder. I do not think the pattern of the audiogram has anything to do with the language dysfunction we call aphasia. High-frequency sensory neural losses make certain words and certain patterns of language difficult to understand. Because the hearing loss occurs so often with aphasia is no reason to consider these as causally related. Moreover, whatever damages neural tissue of the brain can also damage the neural tissue in the ear. A lack of oxygen at the time of birth could well damage both brain and ear, causing a combined problem rather than one stemming from the other.

Dr. Adamson: I would like to return to Donald, whom Miss Wilson was discussing, and comment briefly on the part chromosomal abnormalities might have played in his case. When Donald was described as the oldest of four siblings, all of whom had fusion and translocation of chromosomes 13 and 22, I called Dr. William J. Mellman,* who had done the chromosomal studies. He explained that fusion and translocation of these two chromosomes do not bring about a specific symptom complex, but instead are associated with what he calls "organicity," a pattern of central nervous system dysfunction. Therefore, when Donald had difficulty learning in a new milieu, speech therapy, he was reacting to Miss Wilson not only with many of the emotional experiences he had lived through with his mother, but also with feelings typical of youngsters with central nervous system dysfunction: hypersensitivity to failure, feelings of worthlessness, and well established failure-avoidant patterns. Pre-teen and teen-aged youngsters with central nervous system dysfunction lack awareness particularly of the nuances of interpersonal and social relationships. The fact that Miss Wilson was a *new* person, representing a *new* quality of feeling in the interpersonal relationship, was blocked not only by the transference phenomenon and feelings of inadequacy and hypersensitivity, but also by the subtle lack of ability to sense that something *different* was being attempted in this learning situation.

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As discussed earlier, relationship factors between child and parents may be determinants in the delay in language development. This is illustrated by the three examples of delayed speech noted in Miss McGinnis's (1963) book. These youngsters clearly were neither mentally subnormal nor autistic. One showed obstinancy and avoidance when frustrated, even vomiting to get his own way. Another exhibited a great deal of apprehension and fear of the environment, clearly a reaction to the mother's extreme overprotection. The third, again described as oppositional, when placed in a nursery school with normal children, became increasingly able to risk involving himself in the group and began learning language quickly. The point Miss McGinnis makes is that children often need only a start, a beginning experience with a teacher, to acquire speech and language rapidly. Aphasic children, on the other hand, require continuous teaching before language becomes a tool of symbolization and communication.

Dr. Prall: Dr. Rappaport asked me to discuss the specific factors which differentiate the language deviations of the autistic child and the aphasic child. It is understood, of course, that aphasia and childhood psychosis can be found together. So, I will try only to differentiate the clear-cut autistic child without aphasia from the clear-cut aphasic child without psychosis. The main difference, as I see it, is in how they respond to human contact. The aphasic can look at you and relate. He does not show the massive withdrawal and bizarre behavior of childhood psychosis. Autistic children, on the other hand, do not have to be taught individual sounds. They know how to make them, although sometimes they do not talk at all, until, at a late age, they may suddenly develop speech spontaneously, talking in whole sentences.

Dr. Goldstein, we had a psychotic child who, when referred to us, was diagnosed as deaf. This nonverbal child showed audiometric patterns of deafness. Later, after he became better integrated and learned to talk, he said, "I used to close my earlids." Can children turn off their "earlids" consciously or unconsciously to produce a pattern consistent with deafness?

Dr. Goldstein: Many times we hear that a person can shut himself off. Unlike the eyes, however, the ears are never closed. In psychogenic blindness, expected visual reactions are absent, but I have never seen a case of psychogenic deafness, although I have had many referrals so diagnosed. Nor have I found a substantiated case in the literature. As audiometry comes of age and sophistication increases, even the number of reports in the psychiatric literature has diminished. The ear is always open. If this child shows good hearing sensitivity now, I question the initial audiometry.

Dr. Rappaport: It might be helpful to contrast the language abnormalities of psychotic children with those of aphasic children, as illustrated in the case material. Schizophrenic language has been described in the psychotic adult. Is there a correlate in the psychotic child?

Dr. Adamson: The child growing up in the grip of an autistic process is struggling to organize his feeling life. Often there is a dissociation between his feelings and the words he uses to describe them. Whereas language conveys appropriate feelings for the normally developing child, the autistic child's language is distorted by his feelings. For example, he may express a happy word with great anger. Also, the content of the words and their emotional meaning may be viewed entirely differently by the autistic child and by the normal or aphasic child.

Dr. Prall: The symbolism is often idiosyncratic. A psychotic child may attach certain meanings to certain sounds and words that nobody else does. A boy we followed for 10 years had such neologisms as "bice." Nobody knew what it meant until he finally told me it meant "rectum." I do not know where it came from, but he knew what he meant, and used to shout it all over the house. Psychotic children also use ordinary words idiosyncratically.

Dr. Rappaport: The aphasic child utters words which he has been taught, and, for the most part, uses them appropriately. This is not true of the psychotic child.

Dr. Prall: Psychotic children often mirror what they hear. For instance, they readily pick up the loud commercials on television, make them part of their vocabulary, and fire them back under all kinds of conditions with distorted meanings. They take on a highly symbolic meaning and may be their main means of communication. The commercials were not taught and are not used appropriately. This is not true of the language used by aphasics.

Miss Wilson: To teach the youngster who is emerging from a psychosis, I want a quiet place with a minimum of distractions. My greatest difficulty is getting the child to want to participate in the activity with me.

Dr. Adamson: I think Dr. Prall would agree that the nucleus of the problem in these youngsters generally is the fear of loss of their identity, the fear of being taken over or "swallowed up" by another person. Miss Wilson described a learning environment which is least threatening in terms of sound and background. That is an important part of how she represents herself to that youngster. Instead of moving back into the cave of fear and self-doubt, he could live for a little while with her in a new and less threatening interpersonal experience.

Dr. Rappaport: Along this same line, psychotic children are not concerned about their lack of speech, because it serves a defensive purpose. In striking contrast, aphasic children are acutely aware of their handicap and are strongly motivated to overcome it. For example, when a new child enters one of our more advanced aphasic classes, a frequent first question from his classmates is, "Can you talk?"

Questions from the audience prompted the following discussion by the panel.

Q. EEG seems to be a dirty word at this time. Would anyone care to comment on the use of the EEG in diagnosing these children?

Dr. Goldstein: The EEG can be used for diagnosis in two ways: neurologically, to identify general malfunctioning or focal lesions of the central nervous system, or as an index to response to sound. With the first use of the EEG, I have only indirect experience from working with a neurologist who studied a group of deaf and aphasic children at Central Institute. (Landau, Goldstein, & Kleffner, 1960). As judged by conservative electroencephalographers, a large number in both groups showed EEG abnormalities, mostly of the dysrhythmic type. The aphasic children showed a larger number of disordered EEGs, not focal lesions, but general paroxysmal activities suggestive of epileptic-like behavior without following the classic epileptic patterns.

I am more familiar with the use of the EEG in hearing tests. EEG changes as indicators of response to sound are as useful as any other, including asking a child to raise his finger when he hears a sound. Audiometry based on it is probably the least objective test in use today, even though there is an objective response, because the tester is watching an ongoing pattern that is constantly changing. If you have ever watched the EEG sleep record of a child or an adult, you realize how wild it is, yet a change in the wildness is what you are looking for. Threshold levels determined from EEG changes correlate quite well with thresholds determined by electrodermal audiometry or standard behavioral audiometry. If, by changes in his EEG pattern, a child gives clear indications of a hearing response close to normal thresholds, you can infer with reasonable certainty that his peripheral end organ is intact and that any auditory problem is in the brain rather than in the ears.

Q. Dr. Goldstein, are you ruling out psychogenic deafness only in children or altogether?

Dr. Goldstein: Altogether. I have seen no discrete entity that I could call psychogenic deafness, and I have seen no reports on children or adults that would fit anyone's predetermined criteria for psychogenic deafness.

Q. If you do not call it psychogenic deafness, what do you call it?

Dr. Goldstein: An extreme example is the person who comes into an audiology clinic for medicolegal purposes. Having been in an accident, he claims compensation for complete loss of hearing in one ear. Testing reveals that he has better sensitivity than he claims. Call it what you will; I call it lying. Although a child does not seek monetary gain, he can use deficient hearing for defensive purposes. In a way, he is lying too. In any feigned hearing loss, or pseudohypacusis, which is psychogenic, there is always direct or indirect evidence of hearing.

Dr. Prall: Your point is that with appropriate test procedures you can determine that the child does actually hear, while clinically he may look and behave as if he does not. Some autistic children we have treated react at times to everyday life experiences as though completely deaf. They seem able to turn off their hearing, just as they show an increased threshold to pain and tactile sensations (Goldfarb, 1956). Some even put their hand on a hot stove and leave it there without response. They simply pay no attention to the pain sensation. This would seem to indicate that there is a selective lack of attention to external stimuli to all the senses. However, this is reversible: as the children get better, they respond more to pain and other stimuli.

Dr. Goldstein: In the cases I referred to, there were behavioral indications that the children had not really shut us out. Despite my statement that I have never seen a clear-cut case, nor heard of any one else who has, I suppose it is theoretically possible to have true psychogenic deafness. It would have to fulfill at least three criteria: first, as in vision, there could be no behavioral evidence of hearing beyond the point claimed; second, there should be indirect evidence, through changes in EEG, skin resistance, or other autonomic indicators, of greater hearing than claimed; and, most crucial, following appropriate treatment, the person would give behavioral indications that he could hear at the level previously indicated only by indirect evidence.

Dr. Prall: I would like to clarify a point I made. The child does not act deaf all the time. It occurs when he is terribly upset. He may then crawl under the rug, or cover his head with a towel, or try to flush himself down the toilet. The times when he does not seem to respond to external stimuli come and go. He may be like that in the morning, but by afternoon he may be listening to everything going on. Moreover, when he recovers, he can tell you that he was able to shut off all outside stimuli temporarily.

Dr. Goldstein: I disagree. I think the child has shut out the observer, not the sound. When the child claims to be shutting out stimuli, the sophisticated audiologist sees reactions indicative of hearing. The nervous system is always reacting to sounds, both internal or external. The auditory system may possibly be more primitive than vision and cannot be shut off.

Dr. Prall: Wouldn't touch be more primitive than hearing? Touch is experienced *in utero*. The child is able to shut off painful cutaneous stimulation temporarily.

Dr. Goldstein: In one case we are dealing with distance receptors and in the other with proximate ones. Although they have the same kind of physiological mechanisms, stimuli are different. They arise outside the body. They are integrated in space in the visual system, and in time in the auditory system. The function is different in tactile, thermal, and even pain receptors. I do not know if this is a sufficient explanation, but it *can* be an explanation.

Miss Wilson: How do you explain the normal phenomenon of reading a newspaper and not hearing buses and trains go by? Isn't that a withdrawal of attention? Is that different from psychogenic blocking out or hysterical deafness?

Dr. Goldstein: I do not know if these are the same. If we were given the privilege of consciously determining our internal and external environment, I think we would be dead and the race extinct. Nature provides certain automatic mechanisms over which we have no direct control. The autonomic system regulates our internal milieu: the rate of heart beat, the dilatation or constriction of vessels, and so forth. It regulates the systems which control our very existence. Reactions to the external environment are based on what Sokolov (1960) has called our own neuronal models; that is, we compare the stimulus at hand with what we expect in terms of an established pattern. But we do not say to ourselves, "I am going to ignore the children;" "I am going to ignore the truck noises." Although many of the lower animals can exclude, after a while, insignificant sounds, I doubt if they do so volitionally.

Dr. Rappaport: This controversy illustrates the communication difficulty which arises when a phenomenon is discussed by experts each looking at it from a different frame of reference. In this case, all are agreed that stimuli can be ignored when that is to the advantage of the organism. A seeming point of disagreement centers on whether such shutting out is volitional or automatic, but there is agreement that both psychic deafness and not hearing irrelevant sounds are unconscious and automatic. However, that agreement gets lost because each expert is intent only on his own frame of reference. Moreover, if lying is construed solely as duplicity, without malicious intent to mislead, the autistic child, who has need at the moment not to react to external stimuli, and the person concentrating on the newspaper are both victims of lies which their minds have foisted on them. To the audiologist, this type of lying may be identical to that of the malingerer trying to defraud the insurance company, but I think all of us would agree that unconscious duplicity and volitional swindling have basic differences.

Q. What is the procedure for educating the aphasic child and what is the theory underlying it?

Miss Wilson: The basic teaching procedures are spelled out in *Aphasic Children* (McGinnis, 1963). But the theory behind that method of teaching is not so easily defined nor so readily available. A major problem we encounter is the child's inability to name objects because he cannot associate them with their names. Therefore, we use a teaching system with built-in procedures for improving retention and recall, at the same time developing the child's associative skills. Then, to help him overcome conceptual difficulties, the teaching method offers opportunities to transfer skills learned in structured drill to increasingly less structured situations.

Dr. Goldstein: In teaching an aphasic child you must emphasize the skills he *does* have. In contrast to an automatic feeding in of sensory stimuli to which he cannot react, the Association Method begins with the expressive system, which he can use. It then combines many aspects of the spoken system with kinesthesia, with an acoustic presentation, and with presentation of visual symbols. This reintegration of central nervous system skills starts with a function the child is capable of handling, and it teaches the whole central nervous system to utilize the signals.

Q. I understood Dr. Prall to say that the psychotic child is able to produce sounds in an echolalic fashion. In the aphasic child, why can't echolalia exist along with his inability to produce sounds deliberately and meaningfully?

Miss Wilson: Echolalia is symptomatic not of the motor aphasic, but of some sensory aphasic children. They echo words, phrases, or even sentences. In my experience their prognosis is poorer than that of other sensory aphasics. I cannot tell you why, but it is harder to get through to them.

Dr. Prall: Echolalia is a phase all children go through. Whereas the normal child grows out of it, the psychotic child may use it for months and years, constantly repeating himself, like a broken record. This phenomenon, which is not found in all psychotic children, however, differs from the kind of echolalia I have seen in organically damaged children. The latter repeat the last half of a word, or last syllable, or last phrase like a real echo, as though having heard it, they could do nothing but give it right back.

Q. Would you comment on the use of touch as a device for therapy with psychotic children and aphasic children?

Dr. Goldstein: I have a comment rather than an answer. Dr. Di Carlo of Syracuse University stresses the fact that speech itself is caressing. The mother caresses her child without physical contact by the constant use of her voice, and not talking to him produces ill effects tantamount to failure to fondle him physically.

Dr. Prall: Absence of close bodily contact, such as rocking and fondling, between mother and child is frequently noted in the histories of psychotic children. This deprives the child of needed stimuli. When the child does not respond, the mother withdraws her attention even more, providing still less reading to, singing to, rocking, and bodily contact. This may well be true with some aphasic children for the same reason.

Treatment of the psychotic child is a difficult subject, too long to get into now. However, you may want to refer to a paper of mine on the use of body contact in the treatment of psychotics (Prall, 1964).

Q. What percentage of youngsters accepted at Pathway have been aphasoid rather than aphasic?

Dr. Rappaport: The great majority have been aphasic, because Pathway has a stratified population as a result of the initial process of selection. If, on initial evaluation, a child has a nonverbal IQ which is retarded and which shows no indications of ever being higher, we know he will not profit from our system, and so he is referred elsewhere. On the other hand, even though a youngster's IQ may be retarded, if his test responses indicate a potential significantly higher, we will accept him. We have seen youngsters gain as much as 20 IQ points in one year, illustrating that the potential was there even though the child was unable to demonstrate it when first examined.

Q. If a child with an IQ below 75 does not respond to the Association Method, is the problem primarily one of mental retardation?

Miss Wilson: A child with an IQ below 75 will respond to the Association Method, but less rapidly and with qualitative differences.

Dr. Rappaport: A youngster with an IQ below 75 could also have complications in learning language beyond that expected on the basis of retardation alone. As Miss Wilson indicated, we have given the retarded child individual instruction in our speech clinic, and he has made some gains. However, those gains were grossly limited in comparison with the aphasic child of good intelligence.

Q. Dr. Goldstein said that he was not in favor of placing a hearing aid on an aphasic child unless there was an organic necessity for this. Is this the policy at Pathway?

Miss Wilson: As I understand Dr. Goldstein, he does not want to put a hearing aid on a child who does not have a hearing loss. Neither do I.

Dr. Goldstein: A hearing aid is an electromechanical device for giving amplification. Amplification can also be given by the direct voice. The latter is usually clearer and less distorted than the aid, and has the added advantage of coming up from a background of relative quiet as compared with the background of noise produced by the aid. Because the voice amplifies by calling attention to one sound in contrast to other stimuli, it is the preferred means of amplification for aphasic children.

Miss Wilson: Direct voice amplification is an integral part of the Association Method and is used all the time at Pathway (viz., McGinnis, 1963, pp. 82f & 97).

Q. Does an aphasic child have an inner language with which he communicates with himself and others, without being able to verbalize it?

Miss Wilson: If one has no inner language, there must be something dreadfully wrong. All youngsters communicate on a number of levels. We find no difficulty in nonverbal communication with aphasic children. In fact, we often use this to teach them the concept of what we mean. They may come to us ill-prepared for it because no one had bothered to communicate with them nonverbally, but they do not lack the skill to communicate or play in nonverbal ways. If this be inner language, aphasic youngsters certainly have it.

Dr. Prall: There is little doubt that the aphasic child does develop a fantasy life. In so doing, he probably uses primarily visual imagery, as a deaf child does. As the dreams of a congenitally blind child are not composed of visual images, but rather of tactile, kinesthetic, and auditory images, the child who has no real language can develop fantasy life and inner language with modalities other than words.

Q. Since it would seem necessary to start as early as possible to teach these youngsters, how early can aphasia be effectively diagnosed, and at what age can instruction start?

Miss Wilson: One can make some tentative judgments when the child is old enough normally to have acquired language. The unpredictability of developmental patterns at that age, however, makes it difficult to say the problem is positively aphasia. By the time a youngster is 4, however, more reliable judgments are possible, so for this reason we do not take them into school until then. Even so, all 4-year-olds diagnosed as aphasic may not be ready for school.

Dr. Rappaport: Although a child may not be ready for preschool class until age 4 or older, he can be started on attention-gaining exercises and other types of stimulation which will ready him to gain optimally from preschool.

Q. Can the Association Method be used with deaf children who do not have aphasia?

Miss Wilson: This system can be used with almost any youngster. However, it is not for deaf children, but for children who have language disability and, usually, hearing losses. There are schools for the deaf which successfully adapt certain of its concepts and organizational procedures according to their children's needs.

Q. Which psychological tests do you use in your evaluative battery?

Dr. Rappaport: Since our children are mute when first seen, the tests must be nonverbal. Our reason for testing a child is twofold: (1) to obtain an index to the level and type of his intellectual functioning, and (2) to estimate his intellectual potential. For this, we use the nonverbal intelligence tests. When there is a question of emotional disorder, we observe his behavior in various situations, including play.

Q. Do you use tests such as the Peabody Picture Vocabulary Tests?

Dr. Rappaport: We have used the Peabody, and now we are experimenting with it in ways such as asking the child to choose among words presented in writing instead of vocally. In our experience, used as prescribed, the Peabody yields very low IQ's on all youngsters known to be aphasic. For example, a child who achieves a 95 or even a 120 nonverbal IQ may get a 33 IQ on the Peabody.

Q. What effect does total environmental deprivation have on scores obtained from regular tests of intelligence? May not a child receive a lower score than innate ability would indicate simply because of his environment?

Miss Wilson: Rephrased, the question is how do we safeguard against the possibility that cultural deprivation is really what is reflected by low test scores? We try not to take test scores either as gospel or out of the context of the child's history. After putting together the test results, social development, and all other available information, if there still is doubt about his capacity, we get additional information from his response to diagnostic teaching.

Q. Since the last Institute, have you made a significant discovery or realization concerning aphasia? In other words, have you changed your mind on anything?

Miss Wilson: If I did not learn something new each year, I would be disappointed. Nothing has changed my viewpoint concerning aphasia, but it has become easier for me to qualify the kinds of responses associated only with aphasia.

Q. Is your goal to place the aphasic child eventually in a regular school? If so, will he then have a characteristic speech pattern equivalent to that of a deaf child?

Miss Wilson: Our goal is to prepare children to enter their local school systems. Prognosis for this is based on intelligence, degree of hearing loss, age when treatment began, environmental factors, and emotional stability. We strive to give them academic training equivalent to that offered in public school up to sixth grade, as well as specialized help with speech and language. After they have learned how to learn language, we try to place them in a school where they can progress without further help. If a 4-year-old child is deaf and aphasic, he will probably have to go to a school for the deaf when he is 10 to 12. If a 4-year-old has good hearing, we hope he can go to regular school by age 8 to 10.

So far as speech pattern is concerned, a youngster with a hearing loss and aphasia may always have some residual deviations in voice and speech. Some receptive aphasic youngsters especially have peculiar voice qualities, but these peculiarities are not consistent enough to be regarded as an aphasic pattern of speech.

Q. Do you see any value in Lauretta Bender's concept of developmental aphasia, in which the initial delayed development is corrected by maturation at age 7 or 8?

Dr. Rappaport: Developmental aphasia also has been termed developmental alexia, language retardation, word-blindness, etc. Lauretta Bender (1958) defines it as a retardation in learning to read and write language, and she regards it as she does childhood schizophrenia, as due to maturational lags. Others (Blanchard, 1947; Miles, 1961; Morley et al, 1955) regard it differently. However, all are agreed in referring to a child who is able to communicate verbally, but whose reading, writing, and spelling skills fall significantly below expectations based on demonstrated intelligence. Such a child is markedly different from the aphasic child we are presently discussing: a child who is mute and unable to use language for communication. The child with so-called developmental aphasia shows difficulties which approximate wholely or in part those of children we classify as brain-injured.

Q. Does the new work on the reticular formation shift the emphasis in regard to the child's attention span from the psychogenic to the physiologic realm?

Dr. Goldstein: After World War II reverberating circuits became a very popular idea and were used to explain many things we are talking about today. With the discovery of the efferent aspects of our sensory systems — that is, nerves going to the eye, nerves going to the ear, etc. — we hoped this would explain many dysfunctions, such as psychogenic deafness caused by efferent systems shutting off the ear. Concurrently there was much study of the reticular formation, and scientists hoped it would explain many things. They talked about the reticular formation as the central activating system because, in physiologic preparations, they produced a general arousal pattern by stimulating an animal's reticular formation. If there was something pathologically wrong with the animal's reticular formation, they got different kinds of reactions and no arousal.

Penfield, among others, was trying to discover a key activating center. He (Penfield and Roberts, 1959) called it a centrencephalic system, which involved the thalamic nuclei and the reticular formation. He said this was a central integrating mechanism for general arousal and general consciousness. What was forgotten is that the reticular formation is not unique in the upper part of the central nervous system. Within the central core of the nervous system, through the spine all the way up to the thalamus, there are unmyelinated nerve fibers arranged in a seemingly haphazard network whose phylogenetic development is very similar to that of fibers in the spinal cord which apparently help to regulate some of the spinal reflexes and, in turn, are regulated by the reticular formation at the spinal level. As the central nervous system developed, new parts were added. These did not replace the older systems, but achieved dominance over them. Thus, the newer myelinated pathways in the brain attained greater dominance. When the reticular formation is stimulated, it seems to arouse the entire organism to react to other incoming stimuli. The contention is that if *it* is not stimulated, there is no way of perceiving the specific incoming stimuli.

My feeling is quite the opposite; namely, that the reticular formation is a primitive system which allows us to hear only in an undifferentiated way. Responses evoked by an auditory, visual, or tactile stimulus are almost identical, regardless of which modality is involved. Perhaps the reticular formation is the clearing house for many of the incoming stimuli. What are distinctive, however, are the newer myelinated pathways, the larger, rapidly conducting fibers running up to the cortex. The so-called primary projection system may not carry the primary signal. It may alert the cortex to what is going on in the reticular formation, rather than vice versa.

I believe that a person with a defect in the reticular formation is apathetic not only to auditory, but to all kinds of signals; whereas the person with a problem in his projection systems — visual, auditory, or tactile — has a more specific disorder, such as failure to appreciate auditory signals, dysacusis, or the beginning of aphasia.

Dr. Rappaport: Some experts opine that there is no such thing as an aphasic child without a hearing impairment. What is your reaction to that statement, Dr. Goldstein?

Dr. Goldstein: In my opinion an aphasic child need not have a hearing loss. Earlier I said that whatever causes damage to the brain and leads to aphasia can easily cause damage also to the ear, causing both problems to exist simultaneously. Nevertheless, from what I have seen, there are aphasic children with normal auditory sensitivity.

One classic example came to autopsy (Landau, Goldstein, & Kleffner, 1960). I cannot say he had entirely normal auditory sensitivity, because in one ear there was a small high frequency loss. However, it would not matter if he had one totally deaf ear, because hearing and perception of language can be completely taken care of by one good ear. The autopsy revealed that both temporal lobes were grossly atrophied, and of the two medial geniculate bodies, one seemed completely gone and the other almost gone. Clinically he had aphasia. Here was a case showing the classical symptoms of aphasia, and autopsy showed extensive central nervous system damage bilaterally, but hearing tests done by behavioral audiometry and electrophysiologic audiometry revealed normal sensitivity.

Diagnosis, Treatment, and Prognosis

SHELDON R. RAPPAPORT, PH.D.

Diagnosis classically is defined as the art of identifying a disease from its symptoms. Prognosis is defined as the art of foretelling the course of a disease and the prospect of recovering from it. As applied to the brain-damaged child, both diagnosis and prognosis are based on inductive logic; i.e., inferences made from observations of organismic responses. The history, the medical, neurological, electroencephelographic, x-ray, psychological, educational, and other examinations serve solely to supply opportunities to observe response patterns from different vantage points, thereby enhancing the information obtained. The greater the information, the more astute the inferences we can draw.

Even though the neurosurgeon and the pathologist may directly observe the damage, reasoning must be employed to determine which treatment is appropriate, its likely effect, and the probable outcome of the condition. Moreover, for the majority of brain-damaged children, whose cerebral insult is of a perinatal type, surgery is not indicated, so diagnosis must be purely inductive.

As diagnosis is inferred from multiform observations, so treatment is inferred from diagnosis, and prognosis from treatment. To illustrate the progression, there was a time when the ravages of poliomyelitis went unidentified. Later, even when diagnosed, the prognosis remained poor. As better treatment was found, prognosis improved and ultimately signified prevention. Thus, despite the disparate definitions assigned to these words by the lexicographers, when taken outside the covers of the dictionary, diagnosis, prognosis, and treatment cannot be divorced.

The efficacy of treatment and, therefore, the prognosis depend on the validity of the diagnosis. This, in turn, is contingent upon the accuracy of one's observations, upon the availability of a conceptual framework which permits the synthesis of those observations into a meaningful pattern, and the integration of that pattern into existing knowledge. Without objective observations and an appropriate conceptual framework, a valid diagnosis is no more possible than water is without both oxygen and hydrogen. The absence of either places one in the wistful position of the vagrant who said, "If I had corned beef, I could have corned beef and cabbage, if I had cabbage."

Objective observation certainly has been enhanced by technological advances, but some diagnosticians have come increasingly to ask machines, tests, and laboratory procedures to provide *absolute* diagnoses. The difficulty there is that while tests or machines do provide information under certain conditions, they cannot indicate which variables may possibly vitiate the usual interpretation of that information. No rule gives license to interpret data without taking into account variables which could cause an exception. Even that patriarch of rules, the law of gravity, is now known to be conditional. One of its contingent truisms should state: what goes up, must come down — unless it reaches an escape velocity of 6.9 miles per second.

Perhaps it is insecurity that prompts some persons to want tests or machines to provide the final answer. Then the individual does not have to test the mettle of his own conceptual powers. By maintaining, for example, that *all* brain damage is manifested on the EEG, therefore a negative EEG means no brain damage, he could feel convinced of his diagnosis. He would not have to concern himself with the ramifications of such research findings as patients with known seizures having negative EEG's (Haugsted and Honcke, 1956) or abnormal discharge in depth associated with normal surface activity (Bickford, 1957). Instead he could feel contentedly safe in his tight little truism. But in so doing, he shows incognizance of the change which has taken place over the centuries in the diagnostic frame of reference, the change from superstition and mysticism to inductive logic.

It has been difficult indeed for some to abandon belief in the omnipotence of the witch doctor, the king, the professor, the physician, or some other mortal father image. Both patient and doctor perpetuate the childhood delusion of the all-powerful human who can instantly discern and banish all ills, because to each this fantasy provides security and equanimity otherwise conspicuously absent.

On the other hand, civilization has advanced sufficiently in its relinquishment of the omnipotence dream to begin contemplating equality of the sexes, races, and nations. This is no small gain, for if we make earth's entire history analogous to a single year, January through August would be devoid of life, the next two months would be devoted to primeval creatures ranging from viruses and single cell bacteria to jelly fish, mammals would not appear until the middle of December, present-day man would not make his entrance until 11:45 p.m. on December 31, and written history would begin only one minute before midnight.

Perhaps we can further the growth of civilization even more by relinquishing omnipotence as the diagnostic frame of reference. After all, we live in a technological age in which a rocket costing millions of dollars may be a dud. We do not, as a result, lynch the scientists or vote our congressmen out of office, nor do the scientists feel compelled to save face through hara-kiri. Instead, both scientist and citizen seem able to accept this type of error as a necessary step in learning how to achieve a desired goal. Moreover, we do not demand of the scientists, nor the scientists of themselves, that they develop spacecraft which have unerring accuracy from launching pad to destination. To the contrary, everyone seems content that the course can be continuously corrected, by pertinent data accrued in flight, until the destination is achieved. Perhaps it is this marked difference in frames of reference which accounts for the fact that enlightenment concerning outer space is so far superior to that concerning the inner space of man's cranium.

What would happen if we, as diagnosticians, should shed the last vestiges of the cloak of omnipotence — which, after all, affords no more protection than the emperor's new clothes — and share in plain language with troubled parents how we went about studying their sick children, what we learned about them, and, based on the synthesis of that information with present knowledge, what we believe we should begin to do to help? Would this provoke such a lack of confidence that the parents would not entrust their children to us? Would it preclude any type of treatment from being successful?

No, not in our experience, because we have been doing exactly that, here at Pathway.

For practical purposes, diagnosis begins when the parents first contact us. Their attitude toward what they believe their child's problems to be is important. Where they have previously gone for help, what they have been told about the child's problems, and how they have interpreted what they have been told are also significant. Whether or not the parents wanted the child, the course of pregnancy and labor and delivery, early development, illnesses, accidents, behavior, how the parents, siblings, and teachers responded to such behavioral stimuli — all these are the threads from which are woven the longitudinal picture of the child's difficulties.

A cross-sectional picture of his assets and liabilities in all areas of function is also necessary. This is supplied by neurological, psychological, educational, psychiatric, visual, and auditory examinations. From these combined findings inferences can be made as to whether nonprogressive or ongoing damage to the child's nervous system has been incurred and has interfered with the development and utilization of ego functions (viz., Rappaport, 1964, p. 40f.).

Sometimes even the most thorough evaluation does not provide sufficient information for a difficult differential diagnosis, such as between nonprogressive and ongoing brain damage. Especially helpful at such times is *diagnostic teaching*. Here the child's responses are observed in teaching situations which have proven effective in helping youngsters overcome the handicaps linked to nonprogressive types of brain injury. At the same time, the parents keep a log of the child's reactions to routine home situations about which they are receiving guidance. Information from both these sources of continuous observation has usually indicated that youngsters not responding favorably to the tight structure both of diagnostic teaching and guided parental relationship have problems whose primary cause involves factors other than those usually encountered in perinatal or other nonprogressive types of brain injury. Here again, the age-old concept of diagnosis *ex juvantibus,* or diagnosis based on the result of treatment, proves helpful.

If all the initial findings point to a problem caused by factors other than those associated with brain damage, the findings are discussed with the parents and they are helped to accept a referral to an agency geared to care for that type of problem.

When all the findings suggest an ongoing type of intracranial pathology, this is discussed frankly but supportively with the parents. They are then counseled in how to prepare their child for hospitalization and in how to help him cope with procedures such as a pneumoencephalogram. If surgery is indicated, they learn how to help the child through that ordeal and through his expected reactions during the postoperative period. Evaluation of the child's responses then adds further diagnostic information needed to plan an appropriate rehabilitative program for him.

Both in postoperative cases and in cases of perinatal brain damage, we share with the parents the fact that a cure for brain damage, in all its effects on the child, is a frontier just as real and portentous as that of outer space. We acquaint them with the accomplishments of such pioneers as Dr. Cruickshank, and Dr. Strauss before him, as well as our own contribution to furthering the understanding and remediation of the brain-damaged child. In that context, we try to impart a general understanding of how brain damage interferes with ego development and the particular steps required to establish the skills and controls which have been deficient. Then we try to help the parents understand the nature of their child's specific difficulties and how these are manifested in everyday situations. Special emphasis is placed on aiding the parents to understand what their child is communicating by means of his incomprehensible and irritating deviant behavior, so that they may then respond to it in a way which will foster, rather than retard, ego growth. With continued guidance, the parents realize that the program of ego growth in which they are participating is a dynamic one. It necessitates changing techniques and approaches at *home,* as well as in school, to keep pace with the child's changing needs. They accept the fact that a program administered rotely for X minutes of each hour for *any* given period of time will not automatically cure their child's difficulties. They recognize that those difficulties can be corrected only when everyone concerned keeps pace with the course of the child's development and works coordinately to provide him with what is most conducive to ego growth at any given time. In

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short, they utilize our conceptualization of diagnosis as an ongoing process.

Only when diagnosis is viewed in this framework can treatment be dynamic and, therefore, optimally effective, because the problems resulting from brain damage are not static. They are not solely or even primarily problems of tissue damage, but rather are due to its effect on ego development. Therefore, they are multifarious and subject to influence by all the intrapsychic and interpersonal variables which affect ego development itself. Consequently, to achieve optimal ego growth the course of treatment must be both responsive to and instrumental in changes which result from the development of ego skills, while these, in turn, pave the way for the next stage in ego epigenesis. Treatment must in fact *be* an ongoing diagnosis designed to provide the information needed for it to be continually self-corrective.

This ongoing process provides greater opportunity for effective treatment for any given youngster, and, even more important, it permits learning from one child's response so that, later, others with the same characteristics may be helped more readily. This is essential because of the number of youngsters (conservatively estimated at 4% in the United States) who have an unobvious, or hidden, type of brain damage. A recent study (Riley, 1963) revealed that 325 of 800 children consecutively referred with a diagnosis of mental retardation proved to be of normal or dull-normal intelligence, and half of these were found to have specific perceptual disorders. Thus, the usual estimate that 3% of the United States' population is mentally subnormal may actually include a considerable number of unretarded brain-injured children who had irrevocable diagnostic labels attached to them after only an initial and often cursory examination. Other studies (Banay, 1959) have indicated that youngsters judged delinquent and subsequently imprisoned really suffered from brain damage amenable to treatment. Diagnostic acumen must be sharpened if this sizable segment of the population is to make a lifelong contribution to society rather than be a lifelong drain on it.

In summary, if progress is to be made on the frontier of inner space, youngsters who are brain-damaged must be accurately diagnosed and properly treated so that they may achieve the capacitation of which they are capable. This goal can be attained only if diagnosis and treatment are conceptualized as a continuous multidisciplinary process of observation designed to provide the information needed *to identify* the ego insufficiencies resulting from brain damage and *to facilitate* their transition into skills.

Perhaps the appropriate banner to be carried to this frontier should have emblazoned upon it the words of Kahlil Gibran (1926): "I am ignorant of absolute truth. But I am humble before my ignorance and therein lies my honor and my reward."

DISCUSSION

Dr. Rappaport: Our distinguished panelists will now comment on the case material.

Dr. Dratman: First I shall comment on diagnosis in general, so that you may be better attuned to how the clinical child psychiatrist or psychoanalyst functions. Most child psychiatrists have little knowledge of the organically disturbed child. If, in the course of diagnosis, there is evidence of distractibility or hyperactivity, and if the psychiatrist feels that he cannot diagnose brain injury on one or two or five symptoms, he sends the child to a psychologist and a neurologist. The psychologist frequently helps us make the diagnosis (although in the course of treating the child, the psychiatrist's earlier suspicions and the psychologist's findings may be confirmed). After a diagnosis is made, the psychiatrist recognizes that the child with organic disease cannot be treated in the usual fashion. But he can give the child supportive treatment and help the family understand the process going on, in preparation for finding him a suitable school. Without the help of a special school, the psychiatrist or psychoanalyst can neither teach the brain-damaged child skills nor work through the emotional factors necessary to allow him to start to learn.

To set up the proper theoretical and practical frameworks, we should not emphasize the *brain* disorder, because the component of brain damage may not be verifiable or may be quite silent, whereas the *clinical* disorder clamors for recognition. Thus, we should focus on the constellation of behavioral symptoms, or the *organic ego syndrome*. Such behavior is characterized by a rigidity which is at first unyielding and over which the child has little control. In this context we may also speak of an *organic-neurotic* ego or an *organic-psychotic* ego, referring to a child who has either neurotic or psychotic components as well as brain damage. Such an approach permits us to consider the child as a whole, while concentrating on that part of him affected by internal processes, organic or not; namely, his personality. In this approach, theoretical demands are satisfied because our dynamic model remains intact, allowing us to see more of the process by which the child manages to stay human despite gross deviations in his primary ego. Practical considerations are satisfied also, because we cannot yet treat the organic damage itself, even when it is known to exist, but only that part which is left.

Differential diagnosis should not be made by exclusion. When no organic cause can be found by history and laboratory tests, let us not say, "Ergo the child is neurotic or psychotic." When organic damage *is* found, let us not say that the distractibility, hyperactivity, or any of the other symptoms are necessarily the result of misfiring of neurones, or lack of control of lower centers by higher ones, or higher ones by lower ones. Instead, let us begin to say that *the symptom is in the service of the ego,* helping the child to maintain some form of integration.

Neurosis is diagnosed by the presence of internal conflict, established by the historical facts given by parents and by the observation of derivatives of that conflict appearing in the play or utterances of the child. I emphasize that this diagnosis is *not* made by finding "no organicity."

Psychosis is diagnosed by subtle or gross deviation in the child's behavior from that expected in accord with the psychiatrist's (if he is normal) conceptual model of the internal world of the child and of the external world of reality.

Organicity, with or without neurosis or psychosis, is diagnosed from the history and the cardinal symptoms listed so well by Dr. Rappaport (1964). Often the child's overt behavior is sufficient to lead one strongly to suspect an organic ego syndrome, but psychological testing is essential for confirmation.

The major emphasis of this symposium is on the ego which results from functional derangement of the organ of mental life, the brain. Clinical experience suggests that that ego defends the rest of the personality from awareness of its defects by means of distractibility, hyperactivity, impulsivity, perseveration, and lability of affect. Even perceptual and conceptual difficulties can be used secondarily as defense against the awareness of perceptual or conceptual deficits. Such symptoms are not necessarily a result of the damaged brain. In fact, it has never been proven that hyperactivity or distractibility are related to defective neural transmission or specific brain cell malfunction. Therefore, I believe that the best way of understanding this disease process is through the dynamics of the interaction between organic defect and the child's ego.

This holistic approach influences the choice of treatment techniques. As an example, an organic-ego-disturbed boy felt inadequate and stupid compared to his classmates. Constantly distracted by every stimulus, he was advised to turn his chair to the wall in a corner of his room while trying to do arithmetic. For a brief time this maneuver was helpful, but he soon became more hyperactive than before. This indicates that he felt more comfortable when distracted from such feelings by stimuli of the outside world, and that he responded poorly to the removal of this defense of distractibility without adequate working-through.

By using this holistic concept we do not have to be hampered in the treatment of such a child because we feel there is so little we can do for the damage itself. The *rest* of the child *can* be handled, and he has a better chance for help if we can conceive of his symptoms as part of the ego process of integration.

Dr. Cruickshank: One of the most frustrating experiences to any of us in this field is the inaccessibility of the organ with which we are supposedly working. No one has ever been able to study the brain in its entire function *in vivo*. Even the study of laboratory animals enables us to examine only minute segments of the brain in learning or in operational situations. This leaves us in a state of frustration because we must make major decisions with inadequate data. It will probably be many years before this situation improves. Meanwhile, however, as Dr. Dratman indicates, we can make major progress in education and life-planning for these children by dealing with their behavior in terms of its impact of ego development, while not being overly concerned about the neural tissue.

As I travel from one school system to another and hear that their boards are planning to establish educational programs for brain-injured children, I become exceedingly exercised when it is stated that all children will need EEG's to be accepted in the program. The EEG may be fine for research purposes, but it seems to me that the emphasis is being placed on techniques and mechanics, not on education and the child. It is comforting if the EEG supports the findings of the psychiatrist, psychologist, and others, but alone it is relatively meaningless to psycho-educational planning. Yet this costly effort is written into many school programs.

Since we cannot remove by surgical intervention or, oftentimes, by medication, the child's psychopathological symptoms, it behooves educators — and this is a challenge to education, it seems to me — to devise educational techniques and methodology which will exploit the psychopathology so as to foster the child's growth. An educational setting *can* be provided which is, in large measure, psychotherapeutic and which will help these children tremendously. But adequate diagnostic work is needed first to give educators the information necessary for planning to help the child. The long haul of working with these children is in nonmedical settings. If we put our focus there, I see realistic educational programs developing which can be extremely successful both for the child and his family.

Dr. Rappaport: While the rest of us have been looking at the brain-damaged child from a clinical standpoint, for the past 20 years Dr. Spitz has been seeing him from the viewpoint of neurosurgery and neuropathology. Although we mostly see children who have a perinatal type of damage, it is from children who have ongoing intracranial pathology that we have learned most about clinical symptoms and correlative neuropathology.

Dr. Spitz: I hope to see enough forward thinking and diagnostic progress in the next decade to put us all out of business. My basic concern is that we have been seeing these children too late. Although we cannot be explicit in each case, from the large number of children we have seen, we have a good deal of knowledge about the pathogenesis of perinatal brain damage. Yet Case #7 came to be studied when he was over 9 years old; Case #8, over 16; Case #9, at 10. If we examine the history *critically*, the factors that led to the child's ultimate ego disturbance were identifiable during the first several months of life. That is when great emphasis should be placed on diagnosis and treatment. Were therapy instituted, even with the knowledge available then, we would not have the complicated psychiatric and educational problems that confront us at age 7 and older.

Incidentally, I prefer the term *perinatal* to *static* brain damage, because just as there is a certain amount of development going on in the brain continuously, so does the occurrence of damage have an effect on this development. The very ego disturbance we see later is a result of the interaction of the damage and the development.

Improvement in the future handling of these children will result from earlier, more precise diagnosis, and from expanded use and continued development of specific medical and rehabilitative procedures geared to the preschool child. For those who unfortunately are not recognized early, the psychological and educational program previously discussed will still be necessary.

I have never seen brain-damaged children treated successfully from the unilateral point of view of either education or psychiatry. Nor have I seen satisfactory results when they are treated solely from the organic-neurologic base. Ralph (Case #7), for instance, had an abnormal EEG with focal discharges from a single temporal lobe. This commonly can substantially affect function *and behavior*. Viewing this child from a total, organismic viewpoint and giving anticonvulsant medication, for which there was early indication, might well have substantially lessened the later behavioral and academic complications.

Dr. Dratman: In reading the material on Ralph, I was concerned about the very short history given by the mother and father. I know from my own experience that after seeing a child for six months and getting more historical information, the initial history proves to have been inadequate and in places incorrect. Another point of concern is the absence of information about Ralph's play, which to the psychiatrist is essential for diagnosis.

I wonder if there is enough information in this short history to make a diagnosis. The difficult 12-hour labor and breech birth make us suspicious, but thousands of children are born by breech without developing emotional or organic difficulties. He was placed in an incubator, as are many children. He was breast fed, drank from a cup at 1 year, was not weaned from the bottle until 2, had no difficulties in transition to solid foods — all normal so far. When 3 weeks old, he was found on the floor beside his coach. We have no idea how he got there. The pediatrician felt the fall was nothing to be alarmed at, with which I agree because many children fall and nothing goes wrong. He had a severe attack of croup at 6 months, as do many children. Nothing as yet adds up to the beginning of a diagnosis.

His motor and speech development were normal. Between 2 and 3 years of age he was cared for by the maternal grandmother and was toilet trained after four months. We do not know why he adjusted well to nursery school, but not to kindergarten, where he was restless and overaggressive. The father described Ralph as a bully, aggressive and domineering, but no reason for this was indicated. Also, he stole money. I could give you some analytic interpretations of this, but any textbook or magazine these days tells you that children steal money as a substitute for love. His carelessness and messiness perhaps relate to something in his toilet training, I do not know. He is described as sensitive, wanting to be liked by everybody, but carrying a chip on his shoulder. Again we might weave this in with a lack of feeling secure with the parents, a lack of proper identification. Although such statements are obviously true, there is not enough information in the case material to support such statements. Extrapolating from the few facts available, I could only talk about mythology, not psychopathology.

Dr. Rappaport calls for diagnosis in depth, so we really can understand a child. To accomplish this, my first plea is for fuller histories gleaned not in one or two interviews but over a period of time. Secondly, no matter how much history is obtained, one must examine the *child* to see how he interacts with the psychiatrist in the playroom. Although the psychological tests supply much information which can be woven in with the sparse history on Ralph, the psychiatrist does not turn first to psychological test findings. To make a clinical diagnosis he must get a detailed history and must observe the child.

Dr. Adamson: In getting the history, it is not so much the content of what is said by the mother and father — which certainly can change over a period of time — as the quality of the parent-child relationship at periods of developmental crisis. You listen with a third ear. You ask a question and hear the mother relate what happened, but you try also to pick up some of the feelings and interactions that were going on at that time. Viewing the case material from that standpoint, I turn, for example, to the mother's description of Ralph as sensitive, wanting to be liked by everybody, but defiant toward her, doing whatever he knew would get on her nerves. This, to me, is a tip-off to what he was testing out in his relationship with her. Here is an indication of his struggle to seek out his own identity. These are the kinds of things that are important to listen for if the history is to include not only content, but also the quality of parent-child relationship which has emerged as the child was growing up.

Dr. Dratman: I could not agree more. To discuss this child we need some of that flavor. For example, while giving the history, when the child was 9-4, the mother says, "He has a chip on his shoulder, is defiant toward me, and does whatever he knows will get on my nerves." There is no continuity in this statement. She is only telling us that he has two sides: a sensitive side and a defiant side. I have no idea whether the mother is reporting something factually or is only telling us subtly that Ralph gets under her skin. If this can be investigated further by proper questions, we might learn that this is actually the emotional climate at home. Then we might have the scaffolding for a tentative diagnosis.

Mrs. Ohrenstein: I agree that to get the facts from a family can be difficult. If the child is 9 and is the third or fourth in the family, you are lucky even to find out when he walked. Some parents keep baby books, which supply at least the developmental milestones. Sometimes parents have movies, which help. However, most of the time you rely on what they tell you. When you come back to those points six months later, the mother might say: "He didn't really walk at 12 months. He walked at 14 months. I didn't remember that last time."

In Ralph's case, the history was taken before he actually came to us as a student. I would question the accuracy of the early history, because the marital relationship had been so poor that the parents would have had difficulty in accurately observing the child. Ralph has been used as a pawn, and at present he is the only thing keeping the marriage together. Mother is emotionally overly attached to him, and father has only recently begun to relate to Ralph. This makes it hard to assess his behavior at home. In this kind of case the real tip-off is that the child got along reasonably well until he began having difficulties in school. Typically the brain-damaged child is not picked up until he is of school age. Then he often is thought to have a psychogenic learning problem. For example, because the teacher describes him as "itchy," getting into trouble, and not paying attention, the school concludes that those are the factors causing his inability to learn.

Dr. Decker: This history was condensed. Considerable material was left out simply because it was not felt to be germane to the differential between a psychogenic and a neurogenic learning problem. However, Dr. Dratman's points are well taken, and we agree wholeheartedly. In practice, the parents may be interviewed several times to get a complete history, although this was not the procedure in this particular case.

Dr. Adamson: During the first treatment session Ralph appeared angry, suspicious, and distrustful. He looked at me slit-eyed, with a tight-lipped expression and an almost immobile face. The main indication was that he wanted to size me up without indicating anything about himself. As I was able to help him feel more comfortable, he began to play war, enacting one explosion after another. Invariably I was the one blown up. He also maintained an omnipotent role in which he controlled me, the course of play, and its outcome. Although it was only in play, for Ralph, the question of who was going to win or lose took on a life or death quality.

As we got better acquainted, he began to smile, interact, and express his feelings about why he was coming to see me and why he was at The Pathway School. It poured out that he had been called "stupid" and "dumb," that he was the low man on the totem pole in his other schools. He could be strong and vigorous on the playground, but was constantly failing in the classroom. He felt inferior and inadequate. Because of his hurt pride, he felt a tremendous amount of anger and a constant need to retaliate against all those who viewed him so negatively.

Dr. Dratman: Now *that* is alive. For the first time I see something of this boy.

In discussing Ralph, we must remember that many children who do poorly in school do not have an organic syndrome. Perhaps because of disturbed parental relationships, some of them carry their anger from home to school, transferring to the teacher what they feel toward mother and father. I saw a bright third-grade boy who was flunking every arithmetic test. When I asked him to try some problems, he screamed and became angry with me, exactly as he had with his teacher and his parents. When I told him I thought he could do the work and that actually he was being angry for a special reason, he answered, "Of course I can do the work!" When I said, "Let's see," within five minutes he showed me that he could do correctly every problem which he had previously done incorrectly. This child was consciously using his anger to control the situation, probably a carry-over from home.

Other children with psychogenic problems are unable to learn in school because of parental difficulties which result in the teacher becoming the model for mother, and the child cannot accept anything from (be taught by) a teacher he feels does not love him or whom he does not love. Dr. Pearson (1949) describes this syndrome, and it is described regularly in the textbooks. The child who has severe difficulties with mother and father and siblings comes to school in the first grade as a ready-made little man or woman. He already has fixed difficulties, which the teacher can not help him undo. If he is a bully at home, he will be a bully in school. If he is aggressive or defiant at home, he will be the same in school.

In Ralph's case, perhaps his problems are a carry-over from the home situation to which his initial defenses are intense anger, suspiciousness, a tight-lipped kind of appearance, and playing out the life-or-death game. Anything he allows himself to get from the outside is at a price to himself. Either he has to give up a part of himself or he must work through his difficulties so that he can accept from others. With enough of this kind of material, we can see that perhaps psychogenic problems are present. However, the material still gives no indication whether the basis is an organic pattern with defenses or is wholly psychogenic.

Dr. Cruickshank: I agree, Dr. Dratman, that this case material is a little thin, yet it is so much better than the reports my psychiatric friends send me of their first impressions of a child that I feel almost comfortable with it. Even in its condensed state, it is more complete than the reports school people normally get. If faced with trying to make a decision about what to do with the child, despite the fact that many of the things you mentioned earlier can be observed in thousands of children considered normal, there are clues in the material which at least begin to raise some red flags in your mind's eye. Take, as examples, the difficult 12-hour labor and the birth by breech presentation. Granting your earlier statement, we are nevertheless aware that these two factors are often related to central nervous system disorders. Placing Ralph in an incubator may have been routine, but the attending physician must have done it for a reason. In the back of his mind, he must have felt that something was a bit wrong and that this infant needed an additional assist. The fact that the child was hungry, constantly crying for something to eat, *may* be another important piece in this mosaic of understanding. In one of your comments about Ralph's motor development being normal, you skipped the crucial "but thereafter he was very active and seldom sat still to examine things." Although I am well aware that thousands of babies rarely sit still, to those of us who are on the firing line with these children, this is another small but significant clue indicating hyperactivity which may be based on some central nervous system disorder. From my perspective, whether overly aggressive, wild, tormenting, bullying, and domineering traits are normal for this child and many others is beside the point. The fact is that each of these adjectives has been found to be correlated to organic psychopathology, and they may be again here. I think that we must, from a practical point of view, operate from this orientation.

Dr. Dratman: That is correct. Although the thousands of children I alluded to may have had similar traits or experiences, this boy was having sufficient trouble to warrant being examined. Therein lies the difference. The point I was addressing myself to was the psychogenicity of his problems, not necessarily the organicity.

Dr. Spitz indicated that an EEG should have been taken earlier, rather than waiting until he was 9. Perhaps if an EEG and a neurological examination had been done early, those signs mentioned by Dr. Cruickshank would have been recognized and the organicity identified sooner.

Dr. Spitz: The usual formal neurological examination, which consists of evaluating the cranial nerves, cerebellar function, gross-motor function, etc., is wholly inadequate for the early diagnosis of these children. As a matter of fact, careful observation of the child for 10 minutes affords a better idea of his neurological capacity than does the formal examination. Moreover, the fine peripheral coordinative functions do provide important clues and should be an integral part of the neurological evaluation. Also essential is the psychological examination, or at least those portions of it which give information about the perceptual-motor functions. In the course of an office examination, I never make a diagnosis of brain damage without supporting evidence both from observation of peripheral-motor functions and evaluation of the psychological reports. Without such supporting data I would not be inclined to seek additional confirmatory evidence from an EEG or the more definitive tests, such as the pneumoencephalogram.

The electroencephalogram is rarely critically evaluated as a test procedure. It is too complicated a process to be used as casually as an electrocardiogram. It necessitates the child's cooperation and a technician highly skilled in dealing with children. Suffice it to say that most EEGs obtained on children up to 3 years of age require the use of some sedation. Depending, for example, on whether a barbiturate or chlorpromazine compound was used, the neurologist interpreting that particular EEG must be fully aware of the complexity of responses an individual patient can show to preliminary sedation. He must also be cognizant of the fact that an EEG taken when the child has a fever or is receiving benadryl for an allergy can be exceedingly misleading. These variables and others can only be identified in a history, but that is rarely done in most EEG laboratories.

Oft quoted are articles indicating that as high as 15% of known epileptics may have normal EEGs. This is probably true at the particular time the EEG was taken, but serial EEGs and EEGs done under stimulation techniques will materially reduce the number of so-called normals.

All such factors are important in terms of what the EEG can tell us. I agree with Dr. Cruickshank that a routinized, uncritical type of EEG can lead us astray, but if properly utilized, it can provide confirmation of the organicity and can help in the child's treatment. Specifically, if you find unexpected diffuse cerebral dysrhythmia, or focal discharges without evidence of progressive organic pathology, medication alone may materially improve the child's receptivity to teaching. Sometimes focal changes repeatedly noted on the EEG, coupled with clinical evidence of ongoing difficulty, can lead to finding an aneurism, an old subdural hematoma, a porencephalic cyst, or other ongoing types of pathology amenable to surgical or medical therapy.

Although we still have much to learn about less obvious pathologies of brain injury, in many cases persistence results in a specific diagnosis and therapeutic success.

Dr. Decker: Ralph's psychological test performances provided considerable information which helped to make the differential diagnosis. His mental arithmetic was relatively high, and digits reversed, relatively low. The former test measures concentration; the latter, moderately effortful attending. These results are typical of children with psychogenic learning disabilities. On the other hand, of special interest are the perseverative-like interferences noted both on digits forward and reversed. Ralph also showed considerable "sticky" thinking. An example is his answer to the seasons-of-the-year question (see p. 139). The conceptual goal, which in this case was to give the seasons of the year, was lost as he became confused with months and with the date. By structuring techniques he was brought back to the conceptual goal, only to lose it again. When a youngster responds this way, there is a strong possibility that we are dealing with a brain-damaged child, even though on the surface we may see none of the typical behavioral symptoms.

On the test of inductive thinking, Ralph also gave rather concrete responses, consistent with impairment of what Goldstein (1948) has called the abstract attitude, which is again quite typical of brain injury.

On the picture completion test, Ralph responded unevenly and did a lot of pointing, indicating that although he could recognize the missing part of the picture, he could not verbalize its name. Brain-damaged youngsters frequently respond by gestures or by pointing because they do not have the ability spontaneously to produce the particular verbal concepts required.

On the Bender, Ralph showed such difficulties as a poor sense of spatial organization, dot-for-loop substitutions, wavering lines, rotated and "eared" angles, and a variety of other distortions and inaccuracies consistent with brain injury.

On the achievement tests, there is a sharp fall off in his word recognition scores from the first to the second grade levels. This again is characteristic of the brain-damaged child: he does well on those words which are highly familiar to him and immediately recognized, but cannot generalize from these to less familiar words. Although we certainly would not make a diagnosis on this one characteristic, it is another sign that leads us to believe brain damage may be operative.

Ralph also shows a comprehension problem such that he can grasp only passages which are highly structured in providing unity and many concrete details. This is simply another manifestation of his responsiveness to a structured environment.

The projective techniques reveal obsessive defenses, with much reliance on denial and projection. This defense system, in conjunction with a defective self-concept and narcissistic hypersensitivity, is typical of many brain-damaged children.

The differentiation made in Ralph's case would not have been possible without a psychological examination done in depth.

Mr. Hirt: Before Ralph came to Pathway I saw him for diagnostic teaching. He was passive and docile, unwilling to risk failure or involve himself with any materials or situations that might have been theatening.

When he entered full-time class at Pathway, he continued to be passive for some time. As he became acclimated, the honeymoon was over; he exhibited continual aggression, baiting, and provocativeness. We then changed him to a class of children whom he could not use as foils for his own needs; children who were sufficiently strong in their own ego development that they could respond to him without getting entangled in his problems. At present he has settled down and is not acting out to the degree he did previously.

Educationally he has achieved quite well. As his skills increase, so will his ego strength, and vice versa.

Dr. Rappaport: Ralph's case illustrates an important point. The parental disturbance and other facets of his life experience were such that his learning disability readily could have been considered psychogenic. But if he had been *treated* as having solely a psychogenic learning disability, I do not think he would have had the same prognosis. Even with years of psychotherapy, I do not think he would have made the same progress he has already shown in but six months. Moreover, he has made this progress despite the fact that he was not properly diagnosed until age 9 and despite the fact that the diagnosis of brain damage was so wounding to the father's narcissism that it took him a half year before he was even willing to consult a neurologist for confirmation of what we had suspected initially.

Although there was not enough information in the history to make a definitive diagnosis either of psychogenicity or organicity, certain points at key stages of development suggested organicity, and other signs came from the psychological findings. Still further indications came belatedly from the EEG. Confirmation, however, has come through Ralph's responding well to the course of treatment found effective for brain-injured children. To have insisted on absolute proof of brain damage in the history and in the neurological examination and on the EEG before offering him this treatment could have, by postponement, lost Ralph the opportunity to recover. On the other hand, what would happen if a youngster who had a character disorder, which Ralph seemingly showed initially, were given the treatment designed for brain-injured children? This would include an ego building type of psychotherapy (in contrast to psychoanalysis, which is uncovering in type), educative parent counseling designed to help them in their relationship with their child, rather than to delve into their marital or intrapsychic problems, and an educational program tightly structured and conducive to building ego skills. In my opinion, a child with a true character disturbance could not have made so much progress as Ralph did within six months.

Dr. Dratman: Children who have psychogenic learning disorders are not necessarily helped by educational structuring or special tutoring. If they are in psychotherapy, whether they are going to be able to solve their problems depends on the relationship that develops at the moment. Ordinarily psychoanalytically-oriented psychotherapy or psychoanalysis is necessary to help them.

On the other hand, when children with an organic ego syndrome come into treatment, I rarely attempt any type of insight therapy. Like Dr. Spitz, I have seldom seen children with an organic problem helped solely by psychotherapy. However, I have seen such children progress with special help from a tutor, without psychotherapy. Perhaps their emotional difficulties became encapsulated and required handling only at some later time.

Children with organic problems who come into psychotherapy after they have had some special instruction and are making progress can be helped to understand that the symptoms which were originally labeled "organic" — distractibility, hyperactivity, etc. — were used as defenses against the knowledge of their skill defects. Only then is it possible, for me at any rate, to start insightful psychotherapy.

Dr. Cruickshank: Dr. Spitz commented that it would be helpful to diagnose these youngsters early. The fact is that we rarely do. There is nothing which requires children to be evaluated early, and the chances are we shall continue for many years not to see them until after the optimum has passed. The usual point of obvious trouble for these children is the end of the second or beginning of the third grade. The usual teaching techniques have not worked, and parents and teachers become hysterical about what will happen in third and fourth grade when fractions and decimals enter the curriculum.

There also is a cultural reason why we do not see these children as early as we would like. In school programs for these children, the sex differential runs about 20 to 1. When we do get a girl in the group, she is far more difficult to work with than a boy. The reason for this, I think, is that our culture puts heavy emphasis on the active, rugged little boy. Think of the Christmas gifts given to boys; every father hopes to see his son become a football player or the equivalent. Not until the lad gets too active and fails to respond to school experiences, at about the end of the second grade, do father and mother begin to think that maybe this is more of a problem than the growing pains of a future gridiron star. Diagnosis then comes late. With a girl, the emphasis is on delicacy and all the things little girls are supposed to be and do. If she strays from that role at 2 or 3 years of age, relatives, neighbors, and all the diagnostic personnel of the community are brought in to determine what the matter is, and they seek to correct it immediately.

All this leads to another comment. Some of the more imaginative school systems are beginning to use their kindergartens for intensive diagnosis and study, since this is the time children first come legally into contact with what could be called a diagnostic agency. I do not mean that they are submitted to a long series of tests, for in the great majority of cases this is not needed. Kindergarten does provide an ideal, informal, built-in observation period. To exploit this, a bit of restructuring is needed. We may have to bring in volunteer observers and train teachers to look for and do things not previously required in kindergarten, but there is nothing sacred about the way kindergartens are operated today. A little change could be significant in terms of preventing severe learning problems in later grades.

A different kind of training would be needed by both the kindergarten teacher and the school psychologist. I am disturbed that there are so few psychologists who know anything about young children. It is a sad commentary on psychological training that it is so concerned with higher education that the young child is neglected. If, however, we can prepare teachers with a different orientation, and we can train psychologists to know something about children, this 10-month period can be utilized for informal observation. Then we can achieve a good understanding of what each child is likely to be. Perhaps we can also help parents put into perspective what they should expect from their child, what is normal aggressive behavior, and what is abnormal aggressiveness in a learning situation.

The importance of ongoing diagnosis has been stressed, and I heartily agree. Yet reality prevents ongoing diagnosis in most schools, simply because interdisciplinary diagnostic services are not available. Unfortunately, taxpayers, superintendents, and boards of education have not seen this as a legitimate expenditure. Nonetheless, 80 to 90% of the children referred to community clinics — dropouts and delinquents — could be salvaged if interdisciplinary diagnostic personnel were available to advise and support the teachers. The problems of the team and the problems of interprofessional communication can be handled. The real issue is that school systems are going to have to accept the responsibility to build into their programs the personnel to provide ongoing diagnosis.

Dr. Rappaport: Throughout its history, public education has not seen itself in need of ongoing diagnosis to achieve its goals. To shift a long entrenched attitude is never an easy task.

Let us go on now to the case of Alex (#9).

Dr. Spitz: Alex was 10-11 when admitted to a hospital because of sudden weight loss, poor appetite, and stomach pains. After medical and psychiatric study, the diagnosis was conversion hysteria. To determine whether he could benefit from psychiatric treatment, he was referred for psychological evaluation. This indicated possible organicity. Within three months there was a post mortem study. From the time of the child's admittance to the hospital to the post mortem, *no* neurologic evaluation was made and none of the specific techniques available, such as the EEG, was utilized.

Let us consider the post mortem evaluation in an effort to explain some of the symptoms demonstrated by this child. Although the fluid found in the left knee is a frequent accompaniment of a streptococcal septicemia, this was not suspected. The heart evaluation indicated an abnormal aortic valve. The left coronary cusp was smaller than the other two cusps and the septum dividing it from the other cusps was composed of grayish green, necrotic, thickened vegetation which extended beyond 2 centimeters from the valve. This is a rather typical description of a bacterial endocarditis. The clinical impression was that of a cerebral vascular accident. Death was attributed to a left temporal lobe hemorrhage, secondary to rupture of a mycotic aneurysm of the left middle cerebral artery, associated with subacute endocarditis of the aortic valve, superimposed on a chronic rheumatic valvulitis.

I have no doubt that the hemorrhage described in the autopsy was terminal, since one of that magnitude cannot exist for any length of time; it is incompatible with life. Consequently, we cannot implicate the hemorrhage *per se* as a cause of the organicity demonstrated in the psychological testing. There must have been a month or more during which the aneurysmal dilatation was developing in the left temporal lobe. That certainly could have caused derangement particularly of perceptual-motor function and, more specifically, could have resulted in seizure equivalents.

The difficulty is that this case was inadequately worked up from the organic point of view, and it does not follow the boy's behavior to his death. As a result, we can only make inferences. Even the autopsy is incomplete, making no mention of serial sections of the brain and microscopic evaluation. With a bacterial endocarditis of this magnitude and chronicity, there may have been numerous mild emboli, involving other portions of the brain, which were self-healing and self-liquidating. Less than 10% of emboli resulting from this type of endocarditis cause a brain abscess, and certainly a much smaller percentage cause this kind of aneurysm.

Paroxysmal stomach pain, although extremely common, can be readily misunderstood. Children utilize stomach complaints time and again as an excuse not to go to school, but the fact remains that a common cause of paroxysmal stomach pain is a seizure equivalent. In turn, this is frequently associated with temporal lobe focal discharges. Since no electroencephalogram was done, we cannot say if that occurred in this case. In retrospect, it would have been helpful to have had visual field studies, because the site of this lesion could have interfered with visual function. It is not unusual to find a small quadrantic hemianoptic defect present even as a result of a lesion 1 centimeter by 0.5 centimeter, in the tip of the temporal lobe, and its associated edema.

In essence, this case study reinforces my feeling that when there are persistent or progressive complaints about any area of the body, we should exhaust all the specific diagnostic tests available in seeking the etiology before consigning a child to the limbo of psychogenicity, particularly in the absence of historical or definitive clinical evidence. For instance, for a child to show a specific spike wave discharge in the left temporal lobe would be unusual in the absence of specific evidence of trauma. We must not assume that it would be perinatal in origin. A contrast study — either air study or angiogram or both — would be indicated. These tools of specific medical and neurologic diagnosis have been available for years and should be used.

On the horizon, such things as the brain-scan, utilizing radioactive isotopes, can be accomplished without general anesthesia. In the seriously damaged child, this may result in a quicker yet more precise diagnosis of single or multiple lesions of the brain. With the dedication of both engineering and medical faculties to newer techniques, we shall in time materially improve the speed and precision of our diagnostics.

Dr. Rappaport: If you will note, Alex was examined in 1951. When I did the psychological, I had been working with brain-damaged youngsters for only three years. If today I found a youngster who had such a paranoid-like outburst in the midst of testing, but immediately returned to his obsequious manner, I would be suspicious of ongoing intracranial pathology, especially if his personality structure later proved to be basically sound. If today a youngster also gave an HTP such as Alex's, I would be convinced of that possibility and would insist on a complete neurological study.

In 1951 such an HTP was something new to me. Perhaps it is new to some of you. You will see (on p. 155) that all the drawings are made with intense lines and are unusually slanted on the page. Over the years some youngsters, later proved by neurosurgery to have had intracranical pathology, supplied reasons for this type of drawing. In an HTP post-drawing-interrogation, in other projective materials, and in conversation they indicated feeling a great deal of stress because something which they could not control was pushing them. One youngster described how a seizure felt to him: "It's like the wall behind me suddenly starts to move, and it pushes me through a tunnel, and I drop off the dark end." I think that in such a description and in such drawings we are dealing with an organismic awareness that there is some alien force impinging on it.

There are also other aspects of the psychological which, today, would make me at least suspicious of organicity, but I shall leave those for Dr. Decker to discuss later. Realizing the limitations of this case study, among which are that it is old and its information sketchy, I wonder if Dr. Dratman might draw from it any suggestions for psychiatrists who may encounter such clinical symptoms as sudden loss of weight?

Dr. Dratman: If I had seen this child in 1964, I would have remembered something that happened to me in 1952. A 9-year-old girl was sent to me because she feared she was going to develop polio. She had nightmares of an iron lung, and she had to sleep with her father because she was so anxious. The one thing that troubled me was that she had lost 12 pounds. I asked her pediatrician to examine her again, which he did, and he sent her to a urologist for further studies and x-rays. Nothing was discovered. From what she told me, this child had psychopathology typical of a classical conversion hysteria. Leaving my medical building, she was observed by a physician who did not know I was working with her. The physician said to me, "There is a little girl who has just had polio." She even walked like a post-polio child. She did not improve, and so she was hospitalized for further study. The pediatric resident, whom I had taught the fundamentals of child psychiatry, called me from the bedside and said, "The mother is so upset I do not think I should even examine the child, who clearly has a conversion hysteria." I answered that as long as she was there, he might as well examine her. Ultimately, she was found to have a Wilms's tumor, which is a maligancy of the kidney, and died. The point is that a physician rarely sees weight loss in children. A psychiatrist should remember this.

Concerning Alex's case, I assume the psychiatrist made the diagnosis of conversion hysteria from his interview and not merely on the grounds that Alex had some fleeting pains which disappeared when he entered the hospital. Such reactions are affect equivalents, or anxiety equivalents, or some kind of psychosomatic equivalent, but not conversion hysteria, which has a definite psychopathology.

Dr. Cruickshank: What disturbs me is that hundreds of children with comparable symptoms who are seen in psychological clinics and in schools are never referred for neurological examination, because there are no mechanics for referral, or because there is an impasse in communication between psychological and medical personnel. This is a dastardly situation which must be worked out in the professions.

Dr. Spitz: In this regard, Dr. Cruickshank, I am encouraged by the marked increase in the number of referrals we have received as a result of school psychological evaluations in the last few years. Generally speaking, these referrals are appropriate.

I would like to turn to Case #10. In general, the clinical diagnosis of focal brain damage is made by certain signs the child demonstrates. Although there are many indications of focal organic change in Tyson's case, I shall emphasize only one. At 8 months of age, he began to have focal seizures in which he momentarily lost consciousness. These became progressive both in frequency and severity until, by 11 months, he was having as many as 36 seizures daily. Although neither phenobarbital nor tridione could control the seizures, his seizures stopped at 14 months of age, after he had been hospitalized twice for pneumonia. However, they did *not* stop spontaneously, as was thought. His EEGs demonstrated that seizures continued *but at a level which his parents would not recognize as seizures*. Instead of losing consciousness, he had aberrations of behavior and mild staring spells lasting a minute or less. When finally made, the air study was frightful. It showed that there was virtually nothing left of his left cerebral hemisphere capable of function. Not only was there a massive porencephaly, but the ventricle was about 50 times normal size, and the entire brain was shifted to the side of the hemiatrophy, indicating *extreme* atrophy. At surgery we received a shock. The severe brain damage we saw was obviously the result basically of a very early trauma resulting in a rather old, massive pachymeningitis hemorrhagica, the classic subdural hematoma membrane, which strangulated the cortex and the vessels at the base. A subdural hygroma is a benign lesion if it is picked up in the first year of life, and preferably in the first nine months. Thus, this youngster, with severe brain damage identified only at this late date, initially had a *benign* lesion. Through stimulation techniques at the operating table, it was obvious that we could get no vital function from this portion of the brain. Consequently, a decortication was done. This is incorrectly called a hemispherectomy, since the head and tail of the caudate nucleus, the thalamus, and the vasculature to these basal ganglia are left intact.

A pathological study of the one specimen (see p. 164) proved it to be arachnoid tissue smothered by and enmeshed within fibroblasts. In some places fibrous tissue had undergone thickening and hyalinization. Vascular spaces were present. There were a sparse, nonspecific chronic inflammatory cell infiltrate and numerous focal hemorrhages — the typical end stage of subdural pachymeningitis. The second specimen (see p. 164) showed a porencephalic cyst — again a rather typical end stage of a severely damaged hemisphere. *All* his symptomatology, from the initial focal seizures to his later behavior, which was due to seizure equivalents, and his difficulty in learning can be explained by this massive type of organic change. There would have been no way to help this youngster without surgical removal of the offending lesion. This is one of the few times in medicine when half an organ is better than a whole one, because the offending hemisphere acts as a stimulus to continue intractible seizure discharges which ultimately result in an increase in pathology and in a clinical regression.. The improvement one sees following the decortication of these children results from stopping that discharge pattern which prevents the child from concentrating sufficiently to learn.

Dr. Rappaport: Although Tyson had known seizures, and although he had been in special classes since age 4, a thorough history had never been taken. If one had been taken, perhaps the psychologist who examined him at age 4-11 and again at 6-3 would have considered the possibility of an ongoing cerebral pathology. A history also might have prevented the psychologist who examined him at age 8 from regarding Tyson as having "a sweet and mild manner" when he had proved capable of hurting his dog and of squeezing a baby chick so hard its intestines came out. Misdiagnosis of such ongoing intracranial pathology takes on even greater importance than other misdiagnoses, because in these cases it can result in death, either of the child himself or the person he might unintentionally kill.

In Tyson's case, diagnostic teaching played an important role in differentiating between ongoing pathology and perinatal damage. In every case it provides a youngster with the opportunity to succeed at whatever level of the developmental hierarchy he has reached, whether the gross-motor or the abstract, conceptual level. By means of structured relationship and materials and environment, he is given the opportunity for the success which he had not had previously. If repeatedly he is unable to utilize such opportunities to achieve some success, this is a positive indication of an ongoing, rather than a perinatal, condition. When he is unable to utilize the structure for a beginning internalization of impulse control, this is a second indication of an ongoing pathology. The presence of both indications provides substantial reason to warrant thorough neurological study, including such techniques as the pneumoencephalogram.

The correlation of diagnostic teaching to other indices of neuropathology was investigated by Doctors Spitz and Adamson (Spitz, Adamson, and Noe, 1962). I shall ask them to comment on it.

Dr. Adamson: Seven of 260 consecutive cases evaluated at The Woods Schools presented a difficult differential diagnosis between mental subnormality and childhood schizophrenia, or a combination thereof. The medical histories gave no presumptive evidence for central nervous system involvement. Serial psychological evaluations also did not point definitively to a central nervous system dysfunction. In all cases but one, the electroencephalogram was noncontributory. The classical neurological examination, done quarterly by Dr. Spitz, over a period of one to four years, also was noncontributory. Instead, it was the child's response to the special education class which, in all seven cases, led us to feel that we were dealing with a central nervous system dysfunction. Using the pneumoencephalogram to make a differential diagnosis, we found four of the seven children to have some type of encephalopathy. Such silent brain lesions, not identified by the classic neurologic examination, the EEG, the medical history, the psychiatric interview, or the psychologic evaluation, came to light over a period of time (at least nine months) in the child's response to a structured special education program.

Dr. Spitz: A major obstacle to utilizing the pneumoencephalogram more with children is that the referring physician and the family are fearful of it. Actually, today pneumoencephalography is a benign procedure. It should always be done under complete endotrachial anesthesia, providing complete control of the patient at all times. In 985 consecutive air studies, there were three deaths, all in seriously impaired children (Spitz et al, 1962, p. 566). This mortality rate of 0.3% is not excessive, considering that today's rate in acute appendicitis is 1.04%. Utilized when indicated after adequate preliminary study, the pneumoencephalogram may answer many questions as to why a child is unresponsive to a therapeutic program.

Another point of importance is for the neurologist to recognize that on occasion he may think a patient is doing well and may miss seeing a problem which the psychologist recognizes. In a case in point, I had repeatedly examined a child neurologically without finding evidence of ongoing disease. Because Pathway School's findings suggested there was such a condition, I repeated and expanded our diagnostics and found a focal type of lesion. This indicates the need for close cooperation between the neurologist and the psychologist.

Dr. Decker: The study which Doctors Adamson and Spitz cited highlights several problems commonly encountered at Pathway. For example, in Wade's case (#8, p. 143) the initial psychological studies distinguished neither organicity nor his true potential.

To discern these factors we utilize several principles.* One is to obtain a detailed history, together with an assessment of the child's social development. If, for example, a child scores in the 60's on an intelligence test and in the 80's on the Vineland Social Maturity Scale, we have reason to believe that he is not inherently retarded. If the child's behavior also indicates a higher potential, his performance on the intelligence test must be carefully scrutinized.

Another principle is to recognize that the brain-damaged child often shows much intertest and intratest variability. Analysis of this scatter often is sufficient to rule out true retardation. Wade's scores on the WISC in 1962, for example, ranged from moderately retarded to average, with four scores at or above the dull-normal level. Here, of course, it is well to note the subtests on which he did relatively well. Vocabulary and information, for instance, correlate well with general intelligence, so that relatively high scores on these mean more with respect to potential than would similar scores on the subtests of coding and object assembly. Merely to use *the* highest subtest score as an indicator of the child's inherent intellectual potential is inadequate. In fact, exceptionally high scores on certain subtests, such as coding or digit span, may indicate a notable degree of ego impairment rather than good intelligence.

Whether or not a child performs on a given subtest in an even or uneven manner is also important. (By an uneven performance we mean that the child fails easy items and succeeds on more difficult ones, or gives successful, but mediocre, responses to relatively easy questions and better, more abstract answers, to harder ones.) When studying such an uneven performance, we can often estimate what the scoring potential on that subtest might be from the uppermost range of success.

When neither the intertest nor intratest analysis yields the needed information, a structuring technique devised by Dr. Rappaport (1951, 1953) is introduced after the child has finished his performance on Wechsler subtests such as concept formation (similarities) and analytic-synthetic conceptualization (block designs). For instance, similarities involves the categorization of objects by class or

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***Based on a paper of Dr. Decker's, Several Principles of Differential Diagnosis, read at this Institute.**

attributes, such as telling how a plum and a peach are alike. Because of his impaired ability to think abstractly, the brain-injured child will sometimes give a forced answer or, most commonly, a concrete answer. He will reply that the plum and the peach are alike in that both are round, or because you can eat them. After his performance on similarities is completed, we tell him that he answered one way, which was fine, but then we ask if he can think of an even better reply. Once in a while a brain-damaged child then spontaneously answers that a plum and a peach are alike because they are both fruit. Usually, however, to respond abstractly he needs the structure of analogies: Going on to the next question ("In what way are a cat and a mouse alike") we say, "If a plum and a peach are alike because they are both fruit, how are a cat and a mouse alike?" At this point some will be able to give the abstract response, but others will need the conceptual framework further tightened by our saying, "If a plum and a peach are alike because they are both fruit, then a cat and a mouse are like because they are both ....?" Once having absorbed the *idea,* or the frame of reference, of abstract conceptualization, the child often can go on to give abstract responses to other, more difficult items in the series. His response to this type of structuring provides another index to masked potential. It also helps in differential diagnosis, because the brain-damaged child will time and again appreciably raise his performance by means of such structure, whereas a youngster with a severe psychogenic disturbance will not.

Another subtest which lends itself to this structuring technique is block designs, which uses mosaic blocks to reproduce pictured designs. The brain-damaged child approaches this task with comments such as "I can't," or "this is hard," or "we didn't have that in school yet." He also shows angulation difficulties, reversals, and figure-ground errors. By indicating at the end of the subtest that a particular design was wrong, we find that some can then reproduce the design correctly. When this fails, we take away the picture and give the child an actual block model. Often he is able to duplicate this, but if not, the blocks are separated slightly so that each component of the design is accentuated. Most brain-damaged youngsters then can reproduce the design with their own blocks. If not, they are actually shown how to make the design.

Should following through on these principles still not yield enough information, we have not exhausted our armamentarium. For instance, although many brain-damaged children do poorly on the visual recall of the Bender-Gestalt designs, some of them (and Wade is an example) do unexpectedly well, thereby providing additional clues to potential intelligence. Also a test like the Peabody Picture Vocabulary Test, which measures implicit verbal conceptualization and does not penalize a child for his commonly impaired verbal conceptual powers, often provides the needed additional information. Finally, the projective techniques, particularly the Rorschach, which indicate how a child construes and organizes his perceptual environment, can provide further valuable information. The quantity and quality of certain types of movement responses, whole responses, and original responses can at times be most helpful. For instance, a brain-damaged child with a borderline IQ, on Card IX of the Rorschach (which represents a particularly difficult organizational problem) accurately and creatively perceived a corkscrew opening a bottle. Upon inquiry he described it in excellent detail. Such a response ordinarily is not within the capacity of borderline intelligence.

The assessment of an apparently defective child's actual functioning intelligence, the nature of his intellectual deficit, and his potential intelligence is a task that should not be undertaken by amateurs of any profession. Too much is at stake. However, if allowed the necessary time, a properly trained clinician can usually make such an assessment fairly accurately. Wade's is a case in point.

Dr. Cruickshank: Of great importance to the effectiveness of interdisciplinary diagnosis is the abundant professional respect that exists among the neurologist, psychologists, psychiatrists, and educators of this panel. Those of you who have worked, as I have, in other clinical and educational settings, see this all too rarely. This lack, which exists almost everywhere, makes the insights demonstrated here today impossible in most of the places attempting to serve children. This is discouraging. One simply cannot create a team of diagnosticians on Monday morning and expect it to go to work by noon. We tried this once and failed. Later, after nine months of arguing, perspiring, and being angry with one another, we began to come to a meeting of the minds and to understand one another's vocabulary. Only then did we begin to see some evidence of mutual cooperation and real diagnostic understanding. If we are going to have an interdisciplinary diagnostic team, administratively we must allow the professional people time to practice cooperation. Simply because there are degrees appended to their names does not mean that they can immediately enter into a harmony of concept and understanding. That takes time and patience.

In reading Wade's case material, I sensed the family's feeling of discouragement because, in effect, three professions had let them down. The pediatrician said Wade "would outgrow it," whatever "it" is. The psychiatrist disregarded the organic aspect of what he treated. The psychologist diagnosed him in fourth grade as mentally retarded. There is a lesson here for professional ethics and for professional maturity; but as a psychologist, let me speak only to psychologists. The differential diagnosis of the subcultural child (one that some have called pseudoretarded), as opposed to the brain-injured child, as opposed to the autistic child, as opposed to other kinds of children, is a delicate and sophisticated responsibility. Most of our higher education programs in the United States today are not preparing school psychologists to perform this kind of differential diagnosis.

Public school philosophy is partly the reason for the school psychologist's mistaken diagnosis of Wade as a retarded child. It is based on normative achievement. If a child does not achieve one grade per year, he is automatically regarded as retarded. School psychologists also are primarily interested in the degree of achievement, not in why the achievement in restricted. They can easily run a youngster through the same kinds of tests Dr. Decker was discussing, but if there is no clinical concern for *why* the child functions at a given level, they come up with a diagnosis of retardation. If the *why* is looked into, we open to Wade and thousands like him the vista of proper diagnosis, because it is obvious that something other than endogenous retardation is causing his problems. In our training of psychologists, particularly school psychologists, we must emphasize a clinical frame of reference rather than what the child does in relation to achievement.

I am also pleased with the diagnostic teaching approach. Public schools are in the education business, but they rarely include a *teacher* in the diagnosis. Yet it is the *teacher* who faces the child every morning. No matter how extensive the diagnostic information from neurology, psychiatry, and all the other disciplines, if no one can translate it into what it means to the teacher in the day-to-day practice of the art of education, it is all worthless and a waste of money. What we must do in our public schools is to select intelligent, penetrating, and insightful teachers and prepare them to be educational diagnosticians who can interpret diagnostic findings to those of us in daily contact with these children. Another change needed is for our public school administrators, principals, and even parents to forget about time. The kind of diagnostic teaching discussed here and the kind of diagnostic work the psychologist must perform so the teacher can do her work adequately takes much time.

Dr. Dratman: In the last few years those of us working with the organically disturbed child have found it difficult to make a diagnosis. Turning to the psychologists, we have found that *if properly trained,* they could help us enormously in diagnosis and school placement. Only then could the psychiatrist's skills be used in working with the child's symptoms or defenses. So, out of necessity came friendship!

One last point about the child with organic disease is his difference from the neurotic or psychotic child. The organic child usually is able to relate to other human beings. The relationship initially may be an aggressive and dissatisfying one, but at least he does relate to the person working with him. Another difference is that the organic child feels that his symptoms are a foreign body to him; he seems to be aware of his deficit. This is not a new concept. Hollós and Ferenczi (1925) wrote a treatise on the psychoanalytic interpretation of paresis, showing that many symptoms were based on the patient's awareness that there was something organically wrong with him and that his defensive reactions were an effort to live with that difficulty.

At this point the meeting was opened to questions from the audience.

Q. Pathway's program is the ideal, but I speak for the clinical psychologist who has to cope with the everyday world of reality. In a community agency, the psychologist must look for realistic ways — in keeping with his ethics, conscience, and professional duties — to service a tremendous number of cases. Even if he worked only with organic children, he would be overloaded, but he is under pressure to provide service to all types of children. How can these opposing positions be reconciled?

Dr. Cruickshank: I am well aware of the pressures on clinics, public schools, and hospitals, but I do not believe that we can be all things to all children. It is extraordinarily important that clinics, from a diagnostic and therapeutic point of view, accept only what is a reasonable case load. In so doing, we may have to write off a generation of children. No one likes to do this. I sometimes cannot sleep because of the number of families to whom we have had to say no. However, I also know that if we accepted every child who came for help, we could do only a superficial job for each. Only as more professional personnel become available can more children be served.

Personally, I will not be associated with any service other than one providing total and proper help. Professionally, we must not tolerate an assembly line approach. Diagnostic problems which, statistically speaking, deal with the third and sometimes the fourth standard deviation of our population are the essence of complexity. Without adequate time to cogitate and to put pieces of the mosaic together into a meaningful whole, we repeat the kinds of mistakes made in the cases presented today.

Q. An important person who is missing in this team approach is the pediatrician. Since from the beginning he has contact with the family, can he not pick up early clues and use them for appropriate management?

Dr. Spitz: Most pediatricians are without special interests and are actually pediatric general practitioners. They are too busy to do careful neurological evaluations of the patients in their own practices. Moreover, the average pediatrician never sees a sufficient number of such children to enable adequate evaluations. Please face the reality of this. Unfortunately, one of the causes of the neurological problems we see when the child is of school age is the pediatrician's tendency to pat a mother on the back and say, "Don't worry, this will take care of itself," or "Let us wait a year and see what happens." Pediatricians themselves are aware of this basic deficiency in their education. Hence, most pediatric conventions today feature discussions on neurodiagnostics. For the present, however, unless he is especially interested in the clinical aspects of pediatric neurological disease, he is generally not qualified to diagnose this problem.

Dr. Dratman: What Dr. Spitz has said is frequently, but not always, the case. At the University of Pennsylvania we have allowed pediatric residents to work in the outpatient psychiatric department with emotionally disturbed children, not to make the residents child psychriatrists, but to make them better diagnosticians. This is not done at all hospitals, but it is usually done at teaching hospitals. Moreover, being busy does not excuse the pediatrician. It *is* he who first sees the family, and so he needs to be well prepared neurologically as part of his training.

Dr. Spitz: Although such training is being done in many areas, proper neurological preparation is still rare. Moreover, the emotional characteristics of the child have been stressed to such a degree in the course of their training that many pediatricians miss the fundamental organic factors we are now discussing.

Mrs. Ohrenstein: Often pediatricians do not know how to tell parents that they think something is wrong with the child, without causing alarm. Parents say to me, "When I told my pediatrician my child was diagnosed as brain-damaged, he said that he had been waiting for me to indicate that I saw something wrong."

We cannot lose sight of the fact that a vital part of the diagnosis is the presentation of the findings to the family. It is not enough to say, "Your child is brain-injured." A one-time conference is rarely enough for a family to absorb the implications of such a diagnosis. Parents need to understand what this means and how they can deal with it appropriately. Sometimes this requires quite a long time.

Q. Everything said so far about pediatric training is true, but the emphasis in the past few years has been more and more on developmental medicine. This is good; it is important to the pediatrician and to the general practitioner. In his practice, however, the pediatrician unhappily lacks a program of management. What does he do with an infant who at 6 months is so floppy he cannot hold up his head, who does not begin to develop language by 12 to 18 months, or who shows one of the *-oid* tendencies? There is no place to which to refer this patient except the diagnostic and teaching centers. Even then, many times the answer comes back in profound medical terms, but what is he going to do with it? How does he set up a program of management to help the family and child in this pseudosophisticated society? He has no resource but a unilateral program of management which is too rudimentary in approach. This includes public education, in which such children go unrecognized in Pennsylvania until they are 6 or 8 years old. What happens to them before that?

Dr. Rappaport: There are some things that *can* happen and hopefully will happen more often in the future. In our limited experience, aiding the parents to understand and respond to these children can be of telling importance in the prevention of typical ego deviations. For example, if a youngster is identified as brain-injured at 18 months, the parents can be helped to understand why he presents a different stimulus to the mother than does an intact child, and what she can do to stimulate him so that his basic ego skills *are* developed (Rappaport, 1961). By helping the parents to identify and accept those areas in which their children are deficient, we can, through continuous guidance, help them build in the skills which otherwise would have had no opportunity to grow.

Dr. Cruickshank: Many states have lowered the legal age for admission to what are called *educational services,* most of them to the chronological age of 3. The remaining states make their services available at whatever age they are needed. In several of the states, educational service is broadly defined to include physical therapy, speech therapy, occupational therapy, psychotherapy, parent education, and, at times, even medical services. The concept employed here is to help prepare the child so that he can respond to some kind of education. This means that the definition of public education is being stretched to provide services heretofore unavailable.

Q. When I heard the pediatrician's dilemma concerning management. I was thinking, "He is so right." Then, as I listened to Dr. Rappaport, I thought that unless we change our attitudes greatly and soon, it is unrealistic to expect us to counsel parents, to interpret their child's condition and what the future holds for him, and to help them to manage him. For an extremely long time we have diagnosed, only to send the child home for the parents to hold the bag, or to the school for the teacher to hold the bag.

From sweating it out with the children, from learning from them what they need and what they are doing, the teacher is beginning to be in a position to show parents what things work with their children. This we cannot do on the basis of diagnosis alone. We have been saying we can for a long while, and parents have found out that we are phonies. They take their child from expert to expert, collecting many conflicting diagnoses, only to ask, "What does it all mean?" It seems to me they can learn what it means only from someone working with their child, or from persons who have worked with children like theirs.

To those who work with children and their families, to teachers, and to those who train teachers, I cannot stress strongly enough that parents require much more than a diagnosis to guide them in helping their children. Most of these children were injured early in life; their whole developmental pattern was disrupted. How do we go back far enough to build it up again so that they are in business for themselves? Diagnosis per se cannot give us the means to accomplish that.

Dr. Cruickshank: Thank you, Mrs. Freidus, for putting your finger on an important issue. I feel, as you do, that the knowledgeable teacher can establish a good liaison between the professional program and the parent. Parents do not hold teachers in awe as they do pediatricians, neurologists, and others. Having had warm relationships with teachers, they feel comfortable talking with them. However, if we cast the teacher in that role, or even in the role of teaching these difficult children, another responsibility must be fulfilled — this time for the teacher. The teacher must be given time to talk *leisurely* with parents. This means that appropriate time must be built in as an integral part of the educational program. Secondly, the teacher needs time to consult with the psychiatrist and other professional persons, not only to understand what to say to parents and how to say it accurately and appropriately, but also to understand her role as a teacher of these children. When we have a competent, knowledgeable teacher, when we back her with this kind of support, and when we provide time for parent counseling, the teacher can then make an important contribution to the family.

Dr. Rappaport: Anyone who has worked with these youngsters will certainly agree with Mrs. Freidus and Dr. Cruickshank. For precisely these reasons we are building team conference time and parent counseling into our program. From their first contact with us, parents need a continuous opportunity to be helped to understand the child's difficulties and their own reactions to them. In the final interview, the child's deficiencies are discussed in plain language, using illustrative material from the psychological tests, the diagnostic teaching, and the other examinations. Then, on a regular basis, the parents are counseled on how to respond effectively to the child. In our experience, this service is best performed by the social worker. She is not held in quite as much awe as the "ologists," and she has the professional skill needed to help the parents both with their own feelings about their child and with the process of learning how to respond to him so as to become contributing members of the therapeutic team. When this happens, the parents' contribution is a signal source of gratification to themselves, and it is of great importance to the child's ultimate prognosis.

Mrs. Ohrenstein: The physician, the speech therapist, the physical therapist, the psychologist, and the teacher see the situation from the child's standpoint. In their dealings with the parents their focus is on what the child needs. The social worker, however, stands in the parents' corner, because if no one does, one day the parents cry out that they have needs and feelings too. They require someone who can understand the child's needs and yet find a way to help them implement these needs in their way, at their own pace.

Q. Sometimes an acting-out child who gets involved in difficulties looks organic in retrospect. What do serial psychological and neurological studies of such youngsters show?

Dr. Spitz: By the time such a child reaches fifth grade, with rare exception it is virtually impossible to find an abnormality by means of routine, classical neurological evaluation. On the other hand, sometimes certain fine-motor coordinative defects persist, and almost always some variety of perceptual-motor defect persists even through the teens and early adult life.

In amplitude and frequency, the EEG is similar (but not identical) to the adult's after about 18 months of age. As the child develops, abnormalities which were conspicuous earlier tend to become less obvious as the EEG pattern matures and spontaneously becomes more stabilized. Within those limits, however, residual changes can be found through the fifth and sixth years of life, depending on the kind and severity of brain damage and particularly on whether or not the patient continues to have seizures.

I still think that the best means we have today of picking up the occult variety of brain damage in the older child is psychological testing.

Dr. Cruickshank: As Dr. Spitz indicated, some difficulties continue to be in evidence in adulthood, but not all. Dr. Harry Bice and I (Cruickshank, et al, 1965) are completing a study of 401 spastic children — all of normal mentality — in which we see practically no age trends, whereas in an earlier study of about 300 cerebral palsied children the athetoids showed almost normal figure-ground relationship by their mid-teens, while the spastics did not. In another study of how age trends relate to psychopathology in various types of epilepsy, we find that different medical-clinical diagnoses of epilepsy show different trends as years pass. In general, I would say that certain aspects of psychopathology which interfere with learning and adjustment recede with maturity. But it is dangerous to generalize.

Dr. Rappaport: Although the hyperkinetic, driven behavior so characteristic at early school age may somewhat diminish by adolescence, if not interrupted by an appropriate treatment program, it is likely to modify itself into antisocial behavior which gets the youngster into trouble with the law. (Banay, 1959). The impulse-ridden behavior of brain-injured children becomes more and more deviant, or, as they get older, society is less likely to excuse them, or both. As a result, they are held amenable for what they do, and often they are remanded by the courts to correctional institutions.

If our energy, and money, and trained personnel are not sufficient to explore all areas and help all children — and they are not — as Dr. Cruickshank said, one generation may have to lose out while we concentrate on preventing the now expected ego deviations of brain-injured children from occurring in future generations.

Q. It is obvious that most brain-injured children cannot stay in the regular classroom, but in the borderline situations how does one decide whether special schooling is needed?

Dr. Rappaport: Whenever it is to the child's advantage, we prefer him to remain in regular school, at the same time giving him the ancillary individual instruction needed to strengthen his skills, and giving his parents the counseling needed to help them understand his behavioral responses at home. Sometimes we try this type of program only to find in three or six months that it will not be enough. At that point we arrange to take the child into full-time class.

When it is enough, however, it saves the child several adjustments. On entering Pathway our youngsters are aided to recognize that children come here because they are brain-damaged, that they all have resultant problems which may show up in different ways, and that all of us will work together to help them overcome these problems. When they leave us (after a median stay of about three years) to return to a regular school, they must be helped to identify with normal children.

Dr. Cruickshank: I do not believe that the regular class can genuinely meet the needs of the kind of child we are now discussing, even in what you call the borderline situation. We have to recognize that, what makes a normal classroom good is the worst educational situation one could devise for the brain-injured child. The good classroom incorporates tremendous amounts of stimuli, motivational material, many children, and all kinds of activities. These are the very things the brain-injured child, because of his inability to refrain from reacting to extraneous stimuli, cannot tolerate.

We simply must face the fact that whether we like it or not, we are at the threshold of another proliferated area of special education, requiring distinct clinical teaching programs within the public schools. We ought not to be afraid of this. Although we do not have enough teachers, enough concepts, and so on, these will come. The number of school systems moving in this direction is tremendous. What is hopeful for the school superintendent who is setting up this type of program, in contradistinction to one for the endogenously retarded, for example, is that this has a beginning and an end. I firmly believe that in a reasonable number of years it is possible to move most of these children back into the regular classes, competing at age and grade.

To answer the question of how to decide whether or not to leave him in a regular class, there are some rules of thumb which could be applied: What is the length of the attention span of this child? If he has an attention span of 45 seconds, which is not unusual, he can hardly be expected to adjust in the regular class. If, on the other hand, his attention span is five to ten minutes, he possibly could. Another important factor, which has nothing to do with the child, is the emotional maturity of the teacher to whom he will be assigned. Will she be content with slow progress? Can she adjust to unusual behavior? Is she willing to throw most of what she has ever learned out the window and start from scratch with this child? If she is teaching fifth grade, will she be willing and able to go back to first grade reading activities with him? It is also important to know to what extent the school is willing to adjust to the child. If, for example, it was thought best to keep the child in school only 45 minutes a day, could the school take this in stride without worrying about whether or not it would collect its A.D.A.? Is the school willing to provide a portable cubicle for the classroom, so the child can separate himself when periods of attention are required?

All of this notwithstanding, I do not think the answer is initially to integrate such children into regular grades. I think the answer is special teaching for the period of the child's needs, and regular class thereafter.

Dr. Decker: A basic criterion in making a decision to place a child in a special school is whether he has the fundamental tool-skills needed for academic success. Can he read and do arithmetic in reasonable competition with normally endowed peers? Many brain-damaged children have severe reading problems, but because of their inherent intelligence they are able to do well on standardized reading tests. Therefore, they are daily put into a classroom situation where they have no chance of success. When this happens, special school placement is indicated.

Dr. Dratman: Dr. Cruickshank fully stated his feelings about public school placement for the organically ego-disturbed. The child who has a non-organic dysfunction of the ego in such skills as perception, reality testing, judgment, and memory also requires special schooling. Ego-disturbed children do not belong in regular schools. They almost always do poorly for lack of a structured program.

Dr. Adamson: Two other factors should be considered. One has to do with the child's feelings. How does he feel about his failures, and is he ready to move into a special school program if that is indicated? The other consideration is whether the parents will support such a placement. It has been our experience that unless the parents are convinced that such a change is needed, and unless they are ready to provide emotional support for the child in the new special school program, it will be most difficult for him to adjust to the separation from home. With such parental support and understanding, the child is free to invest himself in the new learning and living situation, knowing that he is still loved and accepted by the primary support system, his home and family.

Dr. Rappaport: I appreciate these elaborated answers. The brain-damaged child I was specifically referring to shows truly minimal involvement. He is able to read, do arithmetic, and perform in all the areas expected of him, but without real facility. He has to work much harder to accomplish what is asked of him, and with *much* more frustration, than children with intact central nervous systems. When this child gets the ancillary individual instruction he needs, in an understanding school environment, he *can* succeed. Over the past 15 years, I would guesstimate that this is true of perhaps one out of 50 brain-damaged children — the one who has sluggishness of skill, rather than an absence or deficiency of skill.

Dr. Cruickshank: A few years ago James Gallagher (1960) reported on the effectiveness of tutoring brain-injured children. He was working with exogenously retarded children, but the implications are for other groups too. He found that children maintained in regular classes but brought out daily for individualized, intensive training, lasting about an hour and using the kind of structure discussed today, made the same growth as did the brain-injured children in our studies.

Q. As a special-education teacher for 12 years, I have seen emotionally-disturbed children with normal IQs, children who are mentally retarded, and children who are physically handicapped all lumped together. How can a special-education teacher work effectively with the mentally retarded, which is what he is supposed to do, when he had all these other children to handle?

Dr. Rappaport: I do not know how it can be done. I have never seen it done successfully.

Dr. Cruickshank: What you are experiencing is only too common. It is a dastardly situation and a sad commentary on American education. It indicates that the professional educator and the techniques available in public schools are not sufficiently mature to do the job we say we are doing. We have a long way to go before we get rid of such dumping grounds. Nevertheless, some school systems *are* getting rid of them, and they are doing a magnificent job of classification based on diagnosis.

Conclusions

Differential diagnosis can be no more effective than the context in which it is employed. It requires a frame of reference which avers that diagnosis serves no purpose other than to indicate which course of treatment would best meet the child's apparently greatest current needs. It must be ongoing, so as to reassess continually the child's response to treatment and to indicate those alterations in the treatment plan dictated by his changing needs. It also must view the problem from the standpoint of interactional patterns of the total child, being vigilant of those based on his intraindividual needs, those arising from his affect on his family and their needs, and those stemming from his and his family's response to the needs and expectations of society. To do that an interdisciplinary diagnostic team is necessary, and, since education is an essential aspect of the child's treatment, the educator must be an integral member of that team. Only within that framework can we meaningfully examine the specifics of differential diagnoses.

In general, aphasia results from the brain's inability to interpret and to integrate the signals sent to it. The characteristics of aphasia focus (1) on deficiencies in acquiring the language skills of reading, writing, speech, and comprehension, and (2) on the teaching method by which the child is able to overcome those deficiencies. The motor aphasic has difficulty imitating lip and tongue actions, saying sounds and words, and remembering the sequence of the sounds in a word or the words in a sentence after he has learned to articulate them. The sensory aphasic has the characteristics of the motor aphasic plus an inability to comprehend language. Both the motor and sensory aphasics have these disabilities to a degree significantly greater than would be expected on the basis of their intelligence, hearing acuity, emotional development, and opportunity to have learned language skills. And both do learn by means of the Association Method's (1) broken-up (in contrast to whole word) presentation of sounds and words, (2) highly structured training in the basic steps of language, and (3) integral association of the fundamental learning processes of attention, retention, and recall.

Mental subnormality can of itself produce language deficiencies which are consistent with the child's intelligence and which include no unexpected motor-speech defect. The child in the borderline to mildly subnormal range who has more severe language deficiencies than could be accounted for on the basis of intelligence alone and who is not able to learn simple language skills spontaneously and without the continuous use of the highly structured Association Method is likely to be aphasoid.

Hearing impairment, of course, interferes with the child's acquisition of spoken language. It is difficult to differentiate deafness from sensory aphasia because hearing loss frequently accompanies aphasia, probably for the reason that whatever causes damage to the brain's neural tissue also causes damage to the ear's neural tissue. In differentiating deafness from sensory aphasia, one must look for discrepancy between the speech and language which the child would be expected to develop, in accord with his hearing impairment and opportunity to learn by appropriate methods, and the speech and language he actually acquires. Such a discrepancy suggests that the inner ear is better able to receive and transmit signals to the brain than the brain is to handle those signals appropriately. When the child can use his residual hearing only with already learned language, achieve adequate retention and recall of language only arduously and with daily practice, and cannot learn language spontaneously through lipreading, he deserves the opportunity of an educational program designed for aphasia. It should be remembered that those symptoms can result from some disturbance in the primary auditory pathways, preventing the brain from having properly integrated signals with which to work (dysacusis), or from the brain itself being unable to handle language signals. In either case the child should be educated, at least initially, as an aphasic because such a program will best enable him to overcome his language deficiencies. It should also be remembered that not every aphasic child has an actual hearing loss, be it a high frequency or other type of loss, and that as he grows in attentional and conceptual skills his hearing may seem to improve, but it can only improve within the "zone of uncertainty" in which the audiologist first thought it to be.

When a child who has a demonstrated hearing loss does not progress as expected in a program for the deaf, one should not view aphasia as the reason for this if he shows the following characteristics: (1) good ability to lipread both structured and incidental language regardless of speech or complexity of sentence structure, (2) no difficulty retaining and recalling sequences of sounds in words or words in sentences, and (3) ability to write lessons from recall without spelling errors and to learn relatively complex new sentences readily. Instead, one should look to the effectiveness of classroom management or to such factors as the child's emotional health.

The child who employs mutism as a defensive insulation against feared hurt from other persons must have had a personality development so abnormal that he will show other signs of that abnormality in addition to not speaking. The aphasic child fundamentally differs from him in (1) wanting to relate with others and, therefore, not showing massive withdrawal and bizarre behavior, (2) being unable to learn language skills unless specially taught the individual sounds which comprise words and the association of words with what they symbolize, and (3) being able to say only those words which he has been taught. In contrast, the psychotic child can articulate whatever words he chooses to say, and such words may have an altogether different meaning to him, because of his emotional distortions, than they would have normally. Some psychotic children also show echolalia. Usually this takes the form of repeating themselves like broken records. Those sensory aphasic children who manifest echolalia repeat words, phrases, or sentences — whichever their attention span allows — but can attach no meaning to those words or recall them for appropriate use.

A psychotic child does not need the type of educational program specifically designed to overcome aphasia. Indeed, he could find the demands of such a program so disturbing that he could defensively withdraw even further into his psychosis. On the other hand, when a psychotic child also has aphasia, the aphasia can and should be treated in an appropriate educational program *after* he emerges from the psychosis as a result of psychiatric treatment. These points would apply equally to the child whose psychosis is organically rooted in a chromosomal abnormality.

Turning to the brain-injured child, one can understand him best by looking at the interaction between the organic defect and the child's ego. This interaction produces a constellation of behavioral responses which constitutes the brain-damage, or organic ego syndrome. In that syndrome, the symptoms are in the service of the ego, helping it to protect the rest of the personality from the painful awareness of its defects, thereby enabling the child to maintain some form of identity and personal intactness.

In differentiating organicity from psychogenicity, care must be taken to avoid the temptation of making the diagnosis by exclusion. A negative EEG of itself does not mean that there is no organicity, nor does a negative orthodox neurological examination. Similarly, when organicity is found, the accompanying symptoms should not be attributed solely to the neuropathology, ignoring both the child's ego-defensive reactions to it and the family's response to the child. Needed information in such differentiations comes from a careful history sensitive both to points at which brain damage would likely cause a demonstrable developmental deviation and to pattern and quality of parent-child interaction. It comes from direct observation of and interaction with the child both psychiatrically and in diagnostic teaching. It comes from serial EEGs or EEGs done under stimulation techniques, which can disclose an unexpected dysrhythmia or focal discharge capable of being alleviated by medication, thereby materially improving behavioral or learning responses. It comes from neurological examination of the child's fine peripheral coordinative functions. It comes from psychological testing which is cognizant of the subtle signs of brain damage, particularly in the perceptual-motor areas, and which provides the structuring techniques helpful in discerning masked potential attainable if organically deficient skills are developed in the classroom through the same concepts of structure.

It is especially important to differentiate accurately between conversion hysteria and ongoing neuropathology, because a child's life may be at stake. The diagnosis of conversion hysteria should not be made simply because a child has a somatic symptom which has no discernible physical cause. This is particularly so if the symptom is weight loss, rare indeed in children. Even the very common stomach pain might be caused by a seizure equivalent. Conversion hysteria has a definite psychopathology which is expressed in all aspects of the child's responses and relationships. In contrast, the child who has an ongoing intracranial pathology expresses in his responses and relationships both an awareness that an alien force is impinging on him and also defensive reactions erected in an effort to cope with that awareness. In general, persistent or progressive somatic complaints call for the use of all diagnostics available in order to ascertain their origin.

Even the fact that a child is known to have had a perinatal brain injury cannot warrant the assumption that his difficulties all are on that basis. Seizures which seem to have stopped spontaneously in infancy may actually continue through the years unrecognized as such. An initially benign lesion may, if undetected and not properly treated, eventuate in severe cortical atrophy. Such youngsters need no less thorough study than those who are not already known to have had perinatal brain injury. When a child whose problems are assumed to be due to perinatal damage does not respond as expected to classroom and relationship structures, so as to attain some success in scholastic achievement and some degree of impulse control, thorough neurological study is warranted to investigate the possibility of an ongoing neuropathology.

In differentiating the child who has a true retardation from one whose intellectual capacity is not realized because of brain injury, the clinician must investigate the reasons for the child functioning at his current level and for his not achieving one academic grade per year. He must also determine if those causative factors can be overcome, and if so, how. Simply measuring degree of intellectual function or degree of achievement can lead only to perpetuating the condemnation of children with inherent brightness to classes for the retarded, where in time they are robbed of the opportunity and will for self-fulfillment.

All the cases documented and discussed in this symposium have one prime point in common: each child could have been properly diagnosed much earlier in life. If that had been done, the lives of most would have been significantly changed for the better. One might even have lived. Careful and continued observation by a neurologically knowledgeable pediatrician could have alerted the parents to the problems within the first year of life, in most instances thereby providing the opportunity to prevent or substantially lessen the complicated psychiatric and educational problems which become obvious in second or third grade.

Certainly we need to generate sufficient interest in neurological impairments for obstetricians, pediatricians, nurses, and parents to want to pool their observations in order to identify these impairments early enough to prevent the many serious complications which take place later and depress the child's prognosis for living a normal life. Short of that ideal, kindergarten should be used as a 10-month period of observation designed to identify such problems. At ages 5 to 6 such problems are not usually as severe as they are at ages 8 to 10. The funds saved by earlier identification of the problems would be more than enough to pay for the proper training and employment of the school *psychologists, teachers, administrators,* and others needed to do the job. Preventing severe learning and behavior disorders from occurring in later grades would prove a boon to the economy of special education and of the nation, to say nothing of the blessing it would be to the well-being of the nation's families.

References

Baker, H. J. *Introduction to exceptional children.* (3d ed.) New York: Macmillan, 1959.

Banay, R. S. (Ed.) Insidious pathology as a factor in juvenile delinquency. *J. soc. Ther.*, 1959, *5*, 7-42.

Beck, H. L. Casework with parents of mentally retarded children. *Amer. J. Orthopsychiat.*, 1962, *32*, 870-877.

Bender, Lauretta. Problems in conceptualization and communication in children with developmental alexia. In P. H. Hoch & J. Zubin (Eds.), *Psychopathology of communication.* New York: Grune & Stratton, 1958. Pp. 155-176.

Bickford, R. G. New dimensions in electroencephalography. *Neurology*, 1957, *7*, 469-475.

Blanchard, Irene. Speech pattern and etiology in mental retardation. *Amer. J. ment. Defic.*, 1964, *68*, 612-617.

Carswell, M. F. Helping parents in the private residential school setting. *Proc. Woods Schools* (Langhorne, Pa.), 1958, 86-98.

Cruickshank, W. M., Bice, H. V., Wallen, N. E., & Lynch, Karen. *Perception and cerebral palsy.* (2nd ed.) Syracuse Univer. Pr., 1965.

Di Carlo, L. M., Kendall, D. C., & Goldstein, R. Diagnostic Procedures for auditory disorders in children. *Folia Phoniat.*, 1962, *14*, 206-264.

Encyclopaedia Britannica. (1959 ed.).

Gall, F. J. *Organology* or *An exposition of the propensities, sentiments and talents of the moral qualities and the fundamental faculties in man and animals and the seat of their organs.* Vol. 5 of *The function of the brain and each of its parts,* trans. from French by L. Winslow, Jr. Boston: Marsh, Capen & Lyon, 1835.

Gallagher, J. J. *The tutoring of brain-injured mentally retarded children: an experimental study.* Springfield, Ill.: C. C. Thomas, 1960.

Gesell, A. L., & Amatruda, Catherine S. *Developmental diagnosis; normal and abnormal child development.* (2nd ed.) New York: Hoeber, 1947.

Gibran, K. *Sand and foam.* New York: Knopf, 1926.

Goldfarb, W. Receptor preferences in schizophrenic children. *A. M. A. Arch. Neurol. & Psychiat.*, 1956, *76*, 643-652.

Goldstein, K. *Language and language disturbances.* New York: Grune & Stratton, 1948.

Haugsted, H., & Honcke, P. Petit mal seizures and wave-and-spike rhythms in epileptic children and adults. *Acta psychiat.*, 1956, Suppl. 108, 169-175.

Heber, R. A manual on terminology and classification in mental retardation. *Amer. J. ment. Defic.*, 1959, *64* (2), Suppl. 1-111.

Hersh, A. Casework with parents of retarded. *Soc. Work,* 1961, *6,* 61-66.

Hollós, S., & Ferenczi, S. Psychoanalysis and the psychic disorder of general paresis. *Nerv. and ment. Dis. Monogr. Ser. No. 42.* Washington, D.C.: Nerv. & Ment. Dis. Publ. Co., 1925.

Korner, Anneliese F. The parent takes the blame. *Soc. Casewk,* 1961, *42,* 339-342.

Kosier, Ada. Casework with parents of children born with severe brain defects. *Soc. Casewk,* 1957, *38,* 183-189.

Landau, W. M., Goldstein, R., & Kleffner, F. R. Congenital aphasia. A clinicopathologic study. *Neurology,* 1960, *10,* 915-921.

Leopold, W. F. *Speech development of a bilingual child; a linguist's record.* (Studies in the Humanities). Evanston: Northwestern Univer. Pr., 1939.

Mahler, Margaret S., Furer, M., & Settlage, C. F. Severe emotional disturbances in childhood: psychosis. In S. Arieti (Ed.), *Amer. Handb. Psychiat.* New York: Basic Books, 1959. Vol. 1, Pp. 816-839.

Makuen, G. H. Mutism in otherwise normal children. *Trans. Amer. Laryngol. & Otol. Soc.*, 1912, *18,* 446-448.

McCarthy, Dorothea. Language development in children. In L. Carmichael (Ed)., *Manual of Child Psychol.* (2nd ed.) New York: Wiley, 1954. Pp. 492-630.

McCarthy, J. J., & Kirk, S. A. *Illinois test of psycholinguistic abilities.* (Examiner's Manual) Institute for Research on Exceptional Children. Univer. of Illinois, 1961.

McGinnis, Mildred A. *Aphasic children; identification and education by the Association Method.* Washington, D. C.: Volta, 1963.

Mecham, M. J. *Verbal Language Development Scale.* Springfield, Ill.: Educational Test Bureau, 1959.

Mecham, M. J. Developmental schedules of oral-aural language as an aid to the teacher of the mentally retarded. *Ment. Retard.*, 1963, *1,* 359-369.

Miles, T. R. Two cases of developmental aphasia. *J. Child Psychol. Psychiat.*, 1961, *2,* 48-70.

Morley, Muriel, Court, D., Miller, H., & Garside, R. F. Delayed speech and developmental aphasia. *Brit. med. J.*, 1955, *2,* 463-467.

Myklebust, H. R. *Auditory disorders in children; a manual for differential diagnosis.* New York: Grune & Stratton, 1954.

Pearson, G. H. J. *Emotional disorders of children.* New York: Norton, 1949.

Penfield, W., & Roberts, L. *Speech and brain-mechanisms.* Princeton Univer. Pr., 1959.

Piaget, J. *The child's conception of the world.* (Trans. by Joan & A. Tomlinson) New York: Harcourt, 1929.

Poole, I. The genetic development of consonant sounds in the speech of children. *Elem. Engl. Rev.*, 1934, *11*, 159-161.

Prall, R. C. *The use of body contact in the treatment of childhood psychosis*. Unpubl. MSS, Philadelphia: Eastern Pa. Psychiat. Inst., 1964.

Rappaport, S. R. The role of behavioral accessibility in intellectual function of psychotics. *J. clin. Psychol.*, 1951, *7*, 335-340.

Rappaport, S. R. Intellectual deficit in organics and schizophrenics. *J. consult. Psychol.*, 1953, *17*, 389-395.

Rappaport, S. R. Behavior disorder and ego development in a brain-injured child. *Psychoanal. Study of the Child*, 1961, *16*, 423-450.

Rappaport, S. R. (Ed.). *Childhood aphasia and brain damage: a definition*. Narberth, Pa.: Livingston, 1964.

Riley, H. D., Jr. Address at Clover Bottom Hosp. & School, Donelson, Tenn., quoted in *Med. Tribune*, Nov. 4, 1963, *4* (88), 1.

Sokolov, E. N. Neuronal models and the orienting reflex. In Mary A. B. Brazier (Ed.), *Trans. of 3d Conf. on the central nervous system and behavior*. New York: Josiah Macy, 1960. Pp. 187-276.

Solnit, A. J., & Stark, M. N. Mourning and the interpretation of mental retardation. Paper read at Amer. Orthopsychiat. Assn. annual meeting, 1961.

Spitz, E. B., Adamson, W. C., & Noe, W. L. Criteria for pneumoencephalography in differential diagnostic study of mental subnormality. *J. ment. Defic.*, 1962, *66*, 561-567.

Stone, L. J., & Church, J. *Childhood and adolescence*. New York: Random House, 1957. Pp. 116-127.

Strauss, A. A., & Kephart, N. C. *Psychopathology and education of the brain-injured child*. New York: Grune & Stratton, 1955.

Templin, Mildred C. *Certain language skills in children*. Minneapolis: Univer. of Minnesota Pr., 1957.

Town, Clara H. Congenital aphasia. *Psychol. Clin.*, 1911, *5*, 167-179.

World Health Organization Technical Report Series No. 75. *The mentally subnormal child*. Geneva, Switz.: Author, 1954.

Zangwill, O. L. Speech. *Handb. Physiol.* Washington, D.C.: Amer. Physiol. Soc., 1960. Vol. 3, Pp. 1709-1721.

Case Histories

CASE HISTORY #1

Name: Frank **Age:** 12

Background Information

Despite many efforts to help him, Frank has not developed adequate speech and language. A 1958 psychological report gives a good picture of him at age 7:

> Frank's test behavior and social attitudes have changed little since earlier examinations. He maintains a fixed grin, grunts a great deal, claps his hands when pleased, and shows considerable enthusiasm for each new activity. His speech has failed to appear, even with exhaustive speech therapy. . . . He has become a master at pantomime.
>
> He continues to be highly excitable, distractible, and hyperactive. He urinated during the examination and appeared surprised and upset by the incident.
>
> The Revised Stanford-Binet Intelligence Scale was presented, and although Frank was handicapped by his lack of speech, the test involved about 50% nonverbal activities in the levels below year 7. The highest level at which he could respond was 4–6, where he showed understanding of the concept of *pretty* and could differentiate simple forms. When form matching was presented at the 4-year level, Frank could not comprehend. When the verbal items from the Wechsler Intelligence Scale for Children were presented, he failed to understand any instructions. He also failed to respond to the Columbia Mental Maturity Scale, and his drawings were mere scribbles. Current results place him at the 3-year level.
>
> Frank walked at 13 months, fed himself at 15 months, has suffered many serious falls due to incoordination, and toilet training is a continuing problem. He dresses himself partially, is trusted alone out of doors, washes his own hands, and can get a drink alone. He helps his mother in such tasks as setting the table. He plays hide and seek, adjusts television without help, and selects programs normally enjoyed by older children and adults.
>
> When tested as a young child, indications were that Frank might be a borderline mental defective, but the outlook was favorable. Now the possibility of aphasia is raised, and recommendations include complete evaluation

> by someone experienced in this area. It might be wise also to repeat an electroencephalogram and to explore the desirability of medical treatment for his hyperactivity. . .

A report, two months later, by an expert on aphasia, states:

> Frank was pleasantly cooperative, and showed little of the excessive activity of which both parents were so concerned. Throughout the hour of examination he used no oral language, but did a fair amount of gesturing.
>
> The clinical history reveals that there was little pre-lingual sound making and virtually no crying during the child's infancy. The mother reports that occasionally spontaneous single words are evoked, but these are not retained.
>
> . . . Examination revealed perceptual dysfunction, slowness in learning, and ritualistic behavior. The child is able to imitate neither words nor even short nonsense syllables, and has poor control of his tongue movements.
>
> My impression is that Frank is retarded, but he also shows the type of perceptual dysfunction and perseveration frequently associated with brain damage. Tentatively, he might be diagnosed as aphasoid. I think that his difficulties are compounded by his parents' apprehension about his behavior and his own anxiety lest his behavior not be approved.

The recommendation for "intensive speech and language therapy, repeating, if possible, pre-lingual steps of language development" was followed when possible on a once-a-week basis. However, two years later Frank still had no language. He was therefore taken to another consultant who reported hyperactivity, internal strabismus of the right eye and preferential use of the left eye, response with good inflection but without words, comprehension of conversations and of both simple and complex orders. The conclusion was: "This is possibly a dominance problem with hyperactivity added." A "dominance training program" was recommended. This was followed for a year. The speech therapist then reported: "Frank is much more settled. His program consists entirely of activities for neurological organization, consisting of stereoptic reader, tracing, colored glasses, and visual training. No noteworthy change has taken place speechwise." Six months later, when Frank was almost 11, the same therapist wrote: "For the past six months Frank has learned to say the letters of the alphabet with comprehension. He has shown interest in reading and writing and has been putting forth more effort in trying to talk, but our program of one hour of speech per week is not adequate. He now needs a daily program."

In contradistinction to the speech therapist's report, the consultant who recommended the dominance training program saw Frank again and reported that he was "most amusing and obviously bright," that he had "developed 20 words of language," that he was left-eared, left-eyed, left-footed, and left in tactile sense. The conclusion was: "I believe Frank should be on a program consisting of patterning four times daily, sleep positioning as a left hander, and a major amount of creeping. I think he should have a visual program of left-eyedness with a red filter on the right eye and writing with a red pencil."

Because Frank was not making satisfactory speech and language progress, and because he was in a school for retarded children, the parents sought an evaluation for him at The Pathway School.

Psychological Evaluation

In October, 1962, Dr. Decker examined the boy, who was then 11. The findings were as follows:

> Frank appeared as a smiling, pleasant, virtually speechless boy with little comprehension of the requirements of the tasks to which he was set. On those he understood, he extended a reasonable effort, but on tasks which did not "go right," for example, figure drawing, he showed a degree of narcissistic hypersensitivity, crumpling up the paper and throwing it into a wastebasket.
>
> On the nonverbal portion of the WISC, Frank's performance was grossly defective. He failed completely the block design, object assembly, and maze tests. He was able to succeed on the initial items of the picture completion and picture arrangement tests, but his successes were so limited that his performances on these tests did not come up to the lowest age norms (5–2).
>
> Frank succeeded at the 4–6 level, but not at the 6–0 level, on the Stanford-Binet likenesses-and-differences test, a task of visual discrimination. On the Seguin formboard of the Arthur Point Performance Scale, II, although his performance improved through successive trials, Frank's final achievement was below the 4–6 level. He showed no understanding at all of the Knox Cube test, which measures attention (beginning at the 4–6 level). The Peabody Picture Vocabulary Test, which measures implicit verbal conceptualization, indicated a mental age of 3–6. Frank was able to copy a square, which is a performance at the 5-year level, but in three trials was wholly unable to copy a triangle, which is at the 6-year level. Both here and on the figure drawing tests his work showed distinctly organic-like characteristics.

Speech and Language

Miss Wilson also evaluated Frank and reported the following:

> Frank wore thick glasses, appeared underdeveloped for his age, and showed a mild cerebral palsy. He had difficulties in gross-motor skills, particularly gait and balance, and in fine-motor control, such as picking up small objects. He also had difficulty matching shapes. However, he was good-natured and willing to attempt all tasks presented to him.
>
> Although able to respond to concrete commands, his comprehension of language and his conceptualization in general appeared to be significantly below the level expected of his age. For example, although he matched colors slowly and with difficulty, he could not give them to me when I said the color names.
>
> Frank was unable to use spontaneous speech, although pitch and volume changes were often appropriately used. He was able to stick his tongue out, but had considerable difficulty imitating other lip or tongue actions, and was unable to imitate any sounds or words. Such nonlanguage characteristics are associated with motor aphasia. However, due to the degree of retardation present, his condition should be classified as aphasoid rather than a true motor aphasia.
>
> Because of his severe intellectual deficit, Frank could not keep up with the children in our full-time program, but could profit from our individual instruction program. Because of the severity of his retardation, only limited speech gains would be expected.

Progress Summary

After using the Association Method with him for seven months, the following was reported:

> Frank has been enrolled in the clinic program of The Pathway School since October, 1962, receiving one half-hour lesson per week. His attendance has been regular, except for a few absences due to illness or bad weather. Mother has accompanied Frank each week and has learned how to work with him daily on assigned lessons. She has been consistent and shows good ability in the practice periods.
>
> Frank does not use speech and language for communication with others. His vocabulary consists of a few words, such as "yes." Generally, however, he communicates through the use of gestures. If he does not understand a request or question, Frank does not respond, but sits quietly. He is able to follow simple directions.
>
> Frank is working in cross drills. He has learned a total of eight elements and five words, but has difficulty maintaining precise articulation of sounds. Frank is able to retain two lines of a four-line cross drill in speech. He is able to trace and copy the words and drills he has had, and can write a few words from memory.

The following was reported after 10 months in the speech clinic:

> Frank continues to learn slowly but consistently. He has learned the speech-motor movements and their associated written symbols for 19 elements and 15 words. He can associate the words with the pictures they represent when he hears the word said, and he can both write and say the correct word (broken up) when shown the pictures.
>
> When writing words from recall Frank often makes errors, such as substituting a learned word having the same initial consonant ("boat"/*bike*), or incorrectly spelling the same sound ("lite"/*light*). When these errors are called to his attention, Frank can often correct them without further assistance. However, in the process of correcting himself, he may forget the word which he is writing and need to be shown the picture again.
>
> In comprehension, Frank has indicated an ability to learn new simple daily commands, and can follow the usual verbal classroom commands. He can also follow two commands, such as "pick up the chalk and go to the blackboard," but there is a considerable time lag between the stimulus of two commands and Frank's final response. He seems to be thinking the words over. Nevertheless, his responses to two commands are usually correct. Three commands produce considerable confusion and usually no response, although he is able to respond correctly to each given separately. Frank is able to place objects appropriately around the room, using the prepositions *in*, *on*, and *under*. Even though he is able to respond correctly to two simple commands such as "go to the table and open your book," he is not yet able to follow two commands involving prepositions.
>
> Frank can match colors and identify them by name if asked to select one among three: e.g., "Give me green," when he has green, yellow, and blue to choose from.

Frank is able easily to identify a familiar picture when he both hears the teacher name it and repeats it after her. However, if he does not repeat it, he seems to forget and is often unable to identify the appropriate picture without several repetitions by the teacher. In other words, Frank has considerable difficulty responding through listening alone.

The boy continues to demonstrate gross- and fine-motor difficulties, particularly in walking and in picking up objects. While he has learned to write successfully, he often forms letters incorrectly before realizing his mistake. With effort, he imitates lip and tongue exercises, except for placing his tongue to the left side of his mouth and protruding his lips.

He continues to rely heavily on gestures to indicate a meaning or personal needs. He also has begun jabbering at the teacher, using various sounds. On occasion he uses a word he has learned in appropriate situations at home. When unable to do an imitation exercise for new whole words, he substitutes either the initial consonant or the sound *bu.*

Conclusions

In his 11 months of training, Frank has progressed in ability to imitate sounds, write legibly, associate words with the objects they represent (both in written form and in comprehending directions), identify words and colors by pointing, respond correctly to prepositions, and show that he has learned the meaning of common verbs by demonstrating their actions. His comprehension skills, while below normal, are at a significantly higher level than his expressive speech.

This youngster's ability to initiate sounds and words under highly structured conditions, while unable to acquire language outside this structure, his comprehension being significantly greater than his speech, and his speech being significantly below expectations for his functioning IQ at age 11 point to the conclusion than more than retardation is responsible for his dearth of expressive speech.

A true aphasoid picture is presented by Frank's initial difficulty in learning to imitate lip and tongue positions, by the effort still needed to execute those already-learned positions correctly, by his ability to learn formally taught sounds and words, and by his continued inability either to transfer what he knows to spontaneous speech or to utilize his speech skills for learning new sounds and words outside the structure of formal teaching.

CASE HISTORY #2

Name: Milt **Age:** 8

Background Information

Milt was first examined psychologically in 1959, at 3½ years of age. That report states that he suffered anoxia at birth as a result of the umbilical cord having been wrapped around his neck. He always was a poor eater, although he did not object to chewing or swallowing, and he still had not been weaned from the bottle. Initial attempts at toilet training began when he was less than a year old, with sporadic attempts since, but without success.

He sat alone at 11 months, began creeping at 12 months, and walked at 23 months. Then he was hospitalized for 10 days for a T&A, crying when his mother visited him, with the result that she would sneak out when he fell asleep. Shortly thereafter it was discovered that his right foot was crooked, causing pain when he attempted to walk. Though a brace corrected the condition, he continued to have poor balance and coordination, particularly when excited. He could not maintain his balance when attempting to run, and physical activity tired him quickly.

Prior to one year Milt made babbling sounds, and his first words (car and mama) emerged when he was 21 months old. By 27 months he had a vocabulary of 20 words, which were monosyllabic (for example, "bot"/*bottle*). When Milt was about 3 his mother realized that he was still babbling, but saying fewer words than at 27 months. The words he did use were employed to enumerate various objects around him rather than to seek gratification. He made his needs known primarily by putting his mother's hand on what he wanted or by crying until she figured out what he wanted. Mother rarely asked Milt to show her what he was after, but prided herself in knowing his needs and satisfying them without his having to ask. On the other hand, there were times when he would get what he wanted for himself. When Mother did talk with him, such as while dressing him, occasionally he echoed a word she had spoken. When one of his sisters (three and five years older than he) talked to him, he answered in a babble having conversational inflections while he grasped her face, as though earnestly trying to communicate.

The parents felt that Milt understood what was said to him, although he did not always pay attention. He seemed interested in stories his father told him and apparently retained them. For example, when he heard the wind blowing strongly one day, he said "wolf," referring to the story of the three little pigs.

Milt was described as happy most of the time, laughing heartily and smiling readily. He cried in anger when frustrated, but the parents could not recall his having cried with tears, either when angry or physically hurt.

Favorite playthings were small cars and trucks, which he used rotely, indulging in no imaginative play. On the other hand, he did play peek-a-boo with his sisters. He also walked the dog around the house on its lead and at times would throw a ball and run after it.

At 3½, when he failed to imitate what his sisters did, he would throw himself on the floor and cry. Lack of coordination seemed to frustrate him most.

At that same age he had a Social Quotient of 44. His inability to hold his own cup or glass unassisted and to control drooling placed him below the 1-year level. On the other hand, with maternal encouragement, he was beginning to show some competence in helping around the house in minor tasks. It was apparent that he had had very little stimulation; his only spontaneous attempt at mastery was in the area of locomotion. When tested intellectually, Milt manifested little interest in any of the test materials and responded, if at all, only after a great deal of cajoling. By means of the Cattell Infant Scale and the Stanford-Binet, an approximate IQ of 54 was achieved. He showed a scatter from 16 through 30 months of age. Throughout the testing he showed substantial fear of attempting any new task.

In view of the degree of scatter of intellectual skills, his fear of challenge, his mental age being significantly higher than his social age, and his having little stimulation, it was recommended that the parents be counseled on how to give Milt systematic environmental structure and stimulation before any decision was made as to the severity of his retardation or his ultimate prognosis. However, because of the distance which the family had to travel and because of the father's work schedule, they were seen infrequently during the next year and a half.

When reevaluated at age 5, Milt showed some small gains. He had added about 30 words to his vocabulary and had begun putting words together into short phrases. His progress in that area was interrupted by a severe case of mumps, after which he seemed to lose some vocabulary, stopped using phrases, and stopped spontaneously echoing words. With help from his parents, Milt learned to throw a ball and to ride a tricycle quite well. He also began making imitative noises while playing with cars and other toys. He learned that red and green stand for stop and go. He could now finger paint and make a circle. Improvement was also evidenced in self-feeding and dressing. These gains were reflected in his SQ rising from 44 to 70. Similar gains were not apparent in intellectual function, however. On the nonverbal portion of the WISC, he achieved an IQ of 58, not significantly above his previous 54. His approach to the various tasks was cooperative but without apparent understanding, although he was pleased when shown how to do a task.

When reexamined a year later, Milt had again made some small progress, despite the fact that for two months he had been going to a rehabilitation center which stopped his speech therapy and listening to music, and put him through a series of procedures to which he was becoming increasingly negativistic. Several weeks before the testing Milt had retrogressed to irritability and crying at the slightest frustration, babbling instead of saying words, not walking as well as before, and wetting himself. He was now toilet trained, except that he needed some help in cleaning himself because of motor difficulty. However, this self-sufficiency was not completely internalized because his mother still had to remind him to do what he had recently learned. He also made some gain in motor skill, now dressing himself and using a table knife for spreading.

Tested for intelligence, he showed marked hyperdistractibility, again withdrew quickly from challenge, was echolalic, and showed increased tension. Nevertheless, his IQ on the nonverbal portion of the WISC increased from 58 to 68, primarily because he could now synthesize parts into a meaningful whole (object assembly subtest). At the same time, he had difficulty with angulation and was perseverative in the analytic-synthetic type of thinking required in the block design subtest. Milt showed some progress in being able to copy a circle easily, but was unable to copy a square (at the 5-year level), again because of angulation difficulties.

In 10 months Milt was evaluated again. In the interim he stopped attending the rehabilitation center, went to kindergarten instead, and resumed speech therapy. During those 10 months he achieved only three and a half months' social growth, with the result that his SQ declined from 77 to 72. When tested intellectually he was much less distractible, not at all tense, and not echolalic. He did, however, withdraw from challenge. Again using the nonverbal portion of the WISC, his IQ declined from 68 to 58, where it had been two years previously. This was due chiefly to the fact that he had not advanced in skill during the year. A Peabody Picture Vocabulary test was given him for the first time, and on it he obtained an IQ of 33. The discrepancy between that score and his nonverbal WISC IQ reemphasized the likelihood of an aphasic component in Milt's difficulties.

During the next year he attended a special class, where, the school reported, he understood number concepts to two, recognized colors, put three and four words together, worked well independently with clay, blocks, and toys, played well with the group in such games as tag and ball, showed improvement in locomotion and hand-eye coordination, put on his own coat but needed help with zippers and buttons, went to the toilet by himself, was obedient, well-behaved, and well-liked. His speech therapist stated that his speech was characterized by several mispronounced but appropriately used words which were surrounded by incomprehensible jargon. He was fairly well able to point correctly to objects (either real or pictured) upon request and to name numerous objects, including parts of the body. The naming was understandable in the context of the situation despite misarticulation. It was felt that his improvement in speech had been very slight, confined to the addition of several individual names of objects and to the concepts of up-down, in-out, and big-small. The speech therapist felt that his continuing hyperdistractibility, perseveration, and poor attention span required the services of a clinic geared to the brain-damaged child.

Psychological Evaluation

In the last reevaluation, made in 1963, Dr. Decker reported:

> On the Vineland Social Maturity Scale, Milt achieved a Social Age of 4.8, essentially the same as the 4.6 in 1962, and 4.9 in 1961. Since his chronological age has, of course, increased, Milt's developmental level has declined from borderline to the mildly defective range, the present SQ being 61.
>
> Milt seemed especially quiet during the testing. He seldom spoke spontaneously and gave mostly one word answers to questions. He was passively cooperative, showing a tendency to withdraw from tasks he felt beyond his grasp.
>
> On the WISC, Milt's nonverbal IQ was 55, in the moderately retarded range. His present performance was much like that of last year, although there has been a significant decline on the object assembly test. Only in social perception did he show a borderline score; the remaining scores were in the defective range. Milt also was still unable to copy a square (at the 5-year level) and his IQ on the Peabody Picture Vocabulary test was 31, consistent with last year's 33.

Dr. Decker concluded that Milt's developmental level had come to a standstill in the mildly retarded range and recommended that the parents be helped to accept his limitations both for present educational efforts and future expectations.

On the basis of his erratic growth in social development, his implicit verbal IQ being significantly lower than his nonverbal, and his history of echolalia together with jargon interspersed with intelligible words, Dr. Rappaport requested a speech and language evaluation to consider the possibility of an aphasic component in Milt's problem.

Speech and Language

Miss Wilson made the following observations:

> He appeared somewhat apprehensive, offered little spontaneous speech, and made few attempts to communicate spontaneously either verbally or nonverbally. In general he was cooperative and friendly.

Milt comprehended only single, concrete commands. For example, he responded appropriately to "sit down." However, when asked to "sit down in the yellow chair" (as opposed to the green one), he sat in the green chair, and when told "no, the yellow one," he walked to his father and stood quietly. When told to bring a chair to the table, without designation of color, he immediately brought the green one. Similarly, he was unable to follow two simple commands combined, such as "sit down and get the book," although he was able to follow each separately.

Milt was able to imitate lip and tongue actions as well as simple elements, but not whole words. Samples of his imitations of whole words were: "like"/*light*, "fu"/*thumb*, "beb"/*baby*, and "bu"/*boat*. Milt also was unable to *retain* the sound-associations for three written elements, although he could imitate the sounds correctly. He tended to give up easily, apparently expecting help from an adult.

There was no obvious evidence of hyperactivity or behavioral disturbance. He did not demonstrate established handedness, and although able to jump on two feet, appeared fearful of falling. He was able to match colors, but could not find them when their names were spoken by the examiner.

Milt's lack of speech and language development appeared consistent with mental retardation, as did his language comprehension level and general behavior. However, since Milt has not developed functional speech, we would be willing to work with him on a trial basis in our clinic program, although it is unlikely that he will develop more than a limited expressive vocabulary.

Progress Summary

After eight lessons of a half-hour per week, Miss Wilson reported:

Milt was somewhat apprehensive and confused regarding expectations during the initial lessons. However, as he became increasingly comfortable he cooperated willingly and showed an interest in the various activities presented to him. With sufficient encouragement, he could be enticed to attempt tasks which he had at first refused because of fear of failure. He sat quietly when he did not understand what was expected of him.

Gross-motor deviations continue, particularly in walking. His left foot turns inward, apparently causing a balance problem, and he also appears to take a shorter step with that foot. On stairs, Milt shows considerable apprehension, holding the railing with both hands and bringing both feet to one step before proceeding. According to the family, orthopedic surgery to straighten the foot is contemplated.

Milt's program consisted of formal and informal speech and language work through the use of a beginning book, a scrap book, and associations of auditory, visual, kinesthetic, and motor-speech activities. In addition, comprehension of daily language and following simple directions were stressed.

In the beginning book, a sound, such as *b*, was written a number of times on a page. It was first spoken by the teacher and imitated by Milt. Then he was asked to say the remaining ones without assistance as the teacher pointed to each. He learned a number of sounds this way without difficulty.

Milt was helped to trace the sounds, saying them in imitation of the teacher as he did so. For auditory practice he was asked to repeat a sound and then find it among several written symbols. He learned to trace and to copy the sounds presented to him, and to point to letters pronounced by the teacher, indicating auditory recognition of and association for sound symbols.

In the scrap book, pictures of common objects with the same initial consonant were placed one to a page. After watching the teacher say the word, then listening to it without seeing her mouth, Milt was to repeat the name of a pictured object asked by her and point to it. He performed this activity successfully, although his articulation of words of more than one syllable often would have been unintelligible out of context. When several different pictures were grouped on a page, he still could repeat after the teacher the name of the object and identify its picture.

When Milt was asked to show or tell *how* an object (such as a shoe) was used, he generally was unable to, although he responded accurately to "show me the ——." From his daily performance, it seemed apparent that he understood what to do with such objects; that is, he put his shoes on and consequently knew where they went. His failure to respond adequately to the question "What do you do with these?" or "Where do you put them?" appeared, therefore, to be the result of lack of the language concept.

When shown a picture, Milt was able to answer the question, "What is the —— doing?" By the use of single words he showed that he understood some simple verbs, such as *eat*, *run*, *water* (swim), *play*, or *walk*, providing the picture contained only one action and one person performing the action. The introduction of another person, such as a mother feeding her baby, was sufficiently confusing that Milt could not identify the action even though he did respond appropriately to "Show me the mother; Show me the baby; Show me the spoon."

Given pictures which he knew, Milt was asked to place them *on* various objects within the room, which he did appropriately. Although he learned to respond also to the preposition "under" for a particular object, he indicated no transfer of this concept from one object to another even of the same class. For example, after placing a picture under one chair, when asked to place it under another, he would put it *on* the second chair.

In speech production activities, Milt could imitate accurately, in isolation, all the sounds of the Northampton charts, with the exception of *ch* and *j*. He also could imitate lip and tongue exercises, protrude his lips, open his mouth and "smile" upon request, protrude his tongue, move it to the right or left, or elevate it. Milt imitated single syllable words, such as *boat*, *bird*, *shoe*, with clear articulation. He imitated some two syllable words, such as *baby* and *table*, but only with difficulty. Usually he would say "po" for *pocket* or "mon" for *monkey*. When the teacher spoke these words slowly, Milt could often repeat both syllables more clearly. While this practice did not enable him to retain the improved articulation, his ability to imitate did improve.

In contrast to his ability to imitate, he could not recall the individual sounds from memory, despite extensive practice through the various modalities. With considerable difficulty, however, he could retain and recall some new words of one syllable from his scrap book. Although generally unable to say words of more than one syllable, he could identify words of two or three provided they were of a concrete nature.

Milt indicated an eventual ability to copy single elements, but could not then write them from memory. In spontaneous speech, he generally used single concrete words such as "come," "go," "coat," to express his needs. He showed little desire to communicate, but was both willing and interested in word games and direction-following activities. In his turn as "teacher," he tried to imitate the teacher's patterns.

Conclusions

Apparently Milt has been misclassified as aphasoid, and should be considered a retarded child. Previous speech therapy could have enabled an aphasoid to move his lips and tongue successfully, but Milt's *facility* with these skills suggests no motor-speech difficulties. Although Milt progressed during his lessons in ability to follow a simple pattern, either verbal or nonverbal, he remained unable to initiate or recall that pattern. In speech, he was able to imitate elements, but unable to recall them from their written symbols, regardless of intensive practice through visual, auditory motor-speech, and kinesthetic associations. Similarly, he learned to copy elements, but could not recall them in writing.

In spontaneous speech, he used one to two words to express his needs and could learn new words of one syllable through a stimulation whole-word approach. Attempting to imitate two- and three-syllable words, he said only a portion of the word correctly. However, he is developing speech and language through environmental stimulation. The major obstacles to his learning appear to be *solely* a lack of readiness for the concepts involved in new language structures plus a lack of awareness and interest.

Prognostically, the development of speech and language will follow, through stimulation techniques, as this child matures mentally. His speech and language will be limited to the concrete because of his severe, organically-caused intellectual deficit. Although he may learn simple sentences, his ultimate speech and comprehension will be severely retarded in comparison with those of the normally endowed child.

CASE HISTORY #3

Name: Fritz **Age:** 9

Background Information

General growth and development were normal except for speech and language. At 1½ years he showed no response to sound and had not started to talk. Tested audiometrically at that time, he made sporadic responses to gross sounds. He consistently responded to low but not to high tones unless the noisemaker was close to his ear. Responses to environmental noises always seemed inconsistent.

Fritz was then given a hearing aid and started in speech therapy. Preparatory to a reevaluation, the speech therapist issued a report on Fritz when he was 3 years old. Despite the mother's statement that Fritz showed inconsistent understanding but used approximations of 18 words meaningfully, the therapist reported that Fritz understood no words or phrases. His response to sound with or without amplification was sporadic. He could respond to but often ignored both soft and loud sounds. Although he made many vocal noises and imitated the therapist occasionally, he did not use meaningful speech spontaneously during his sessions. It was also reported that Fritz was inconsistently disciplined at home, mother giving in and father being overly strict, and that in nursery school Fritz was most cooperative with his strict teacher.

When reexamined at age 3–2 he was found to be willful and uncooperative. He also demonstrated inconsistent sound, with "good and ready localization down to 20 db." The conclusion was: "this is certainly a high central problem which may have some auditory aspects, but the basic problem seems to be an aphasia." The program at Central Institute was recommended. The parents sent Fritz to a local speech center instead, for speech stimulation.

A report from that center, when Fritz was 6½, states that his marked inadequacies in listening and auditory perception because of disinhibition and inattention were noticeably lessened under amplification. A binaural hearing aid was prescribed. At that time Fritz was in first grade in regular school, and was reported to be doing satisfactory work. He was also described as less hyperactive and more cooperative.

When Fritz was 7½ he cooperated during an audiological reevaluation. The responses to pure tone were all within the 0 to 10 db level. He gave definite responses to various gross sounds in the soundproof room at a 10 db level. He also responsed to both vowel and consonant sounds presented in isolation through the loud speaker at a 15 to 20 db level. A definite threshold for speech when using object identification could not be obtained. However, he did communicate better when visual and auditory cues were combined. It was further reported that Fritz recently had stopped using jargon and began using sentences, although not all the words were clear.

At the beginning of second grade, when Fritz was 8, he achieved a score of 1.8 in reading comprehension and 1.6 in word meaning on the Metropolitan Achievement Test. He was reported able to read and write in both manuscript and cursive. He was also described as aggressive and so highly competitive that he wished constantly to be the winner. As second grade progressed, he became increasingly frustrated, and his behavior worsened accordingly.

Fritz then was referred to The Pathway School, where he was accepted after initial observation confirmed the earlier diagnosis of aphasia. He began full time class as a residential student in September, 1962.

Audiological Evaluation

In June, 1963, Fritz's hearing was assessed by pure tone and speech techniques. By pure tone, in the right ear he showed a 40 to 50 db loss between 125 and 1000 CPS, an 80 db loss between 2,000 and 4,000 CPS, and a 50 db at 8,000. In the left ear, he showed approximately an 80 db loss through all frequencies. The average loss for 500 to 2,000 CPS was: right, 58 db; left, 78 db; best binaural average, 58 db.

Speech reception was tested with spondaic words. Loss was: right, 46 db; left, 76 db; binaural, 46 db. It was not possible to test auditory discrimination.

The audiologist concluded: "These scores agree closely and indicate a moderate loss in acuity in the right ear and a severe loss in the left. The audiogram is primarily one of sensori-neural hearing impairment with a slight conductive addition in the left ear in the low frequencies. This child will certainly require special teaching procedures in order to develop and use meaningful language concepts."

An otologic examination revealed the right tympanic membrane to be scarred, with evidence of several myringotomies previously performed. The right drum was intact. The left tympanic membrane appeared dull, gray, and retracted. Nose and throat examination was negative. No recommendation for treatment was made.

Psychometric Evaluation

In May, 1963, Fritz was tested by means of the nonverbal portion of the WISC and the Peabody Picture Vocabulary Test. He was pleasant and cooperative, but still habitually sucked his fingers. His nonverbal IQ was 120, in the superior range. His best score, at the very superior level, was in ability to discriminate essential from nonessential details. On tests of analytic-synthetic thinking and symbol transcription he scored at the superior level. On the former he missed one item because of an organic-like rotation, which, if passed, would have put him in the very superior range on that test. In social perception his performance was uneven and in the dull-normal range. He missed several easy items and succeeded on more difficult ones, yet his peak of success was only at the average level. An interesting organic-like phenomenon on that test was a reversal of the ordinary left to right progression on one sequence.

His Peabody IQ, reflecting implicit verbal conceptual skill, was 37, in the severely retarded range. The great discrepancy between his nonverbal and verbal skills is, of course, consistent with his aphasia.

Progress Summary

In January, 1963, the following was reported:

> When Fritz first entered Pathway, he was extremely aggressive. He wanted to be first in activities, both in and out of the classroom. He also objected to orders, such as "Go to the table," although he would comply.
>
> Since September Fritz has learned to say, read, and write 20 elements and 22 words in structured lessons. His articulation of elements can be good when he uses full concentration. However, he has difficulty articulating correctly, partly because of speech-motor difficulties; particularly the *s*, *sh*, *l*, *n*, and *r* sounds. Without daily practice Fritz rapidly forgets the association between a sound and its written form. He also needs to speak slowly to maintain precision.
>
> When learned words are presented to Fritz for lipreading practice, he is able to repeat them correctly, find their appropriate pictorial representations, and associate them with their written symbols. He has also been able to lipread the simple commands he has been taught.
>
> Fritz tries to communicate through speech and gestures. He uses one- or two-word approximations which are usually sufficiently clear to be understood. However, at times he uses a jargon in which only an occasional word is

clear. While it is often possible to understand Fritz, it is difficult to communicate *verbally* with him unless the language used has been part of the daily classroom structure.

He can identify correctly and discriminate among the words and elements presented to him auditorially at a distance of one to three feet. With breath sounds, it is necessary to decrease the distance. Fritz does not respond to *f* and *p* through the auditory pathway. Within the environment, Fritz reacts to various extraneous noises and voice. He responds to his name inconsistently.

With daily practice Fritz shows good retention and recall of material presented. His few speech recall errors consist of incorrect articulation of sounds. In writing, the infrequent errors consist of omitting or reversing the order of letters. When these are called to his attention he can usually correct them.

In June, 1963, the following was reported:

During the second semester Fritz has been a sociable youngster, generally cooperative with children and adults. However, on occasion, he tries to test limits and he needs to have definite rules clearly understood and enforced.

His voice quality and volume remain good. He uses considerable spontaneous inflection. He presently has difficulty with the speech-motor movements for *s*, *sh*, *ch* and *j*.

Fritz has had 11 question forms and can ask or answer these questions with complete sentences in drills. He responds readily to this learned material in lipreading exercises. In incidental situations he continues to have difficulty, and it is often necessary to repeat the questions or write them before he understands. Nevertheless, he is beginning to transfer material he has been taught to incidental situations. He uses two- to three-word sentences, such as, "Who this?" or "I forgot."

When given formally-taught sentences, Fritz responds correctly to auditory discrimination from a distance of about eight feet. There is a time lag before his response to the question, and occasionally he appears confused, but his responses are correct. On the other hand, he shows no auditory discrimination of *ch*, *sh*, *s*, *t*, *f*, and *p*.

Fritz has begun to use his hearing projectively for speech. He responds to his name and, when listening, can appropriately answer questions he has learned.

His ability to retain and recall his work has been good. He is also beginning to use the language he has been taught more spontaneously.

In January, 1964, the following was reported:

Fritz is an aggressive youngster and is constantly on the go. He is a leader in his present class grouping and if not kept busy, he creates a disturbance. He tends to forget quickly what he has been told *not* to do, and on occasion he must be told several times or be removed from the group to quiet down.

More vocabulary, prepositions, stories, questions, numbers, and present progressive verbs are being presented. His lipreading of structured blackboard work is good. His incidental lipreading is not accurate, but he is beginning to pick up information incidentally. He now understands verbal instructions which previously confused him.

Fritz wants to communicate through language and uses written language for this purpose. He also tries to use immediately words which are being taught. This has been especially noticed with prepositions, which he has been using in incidental speech since they were introduced a few weeks ago, although he does not use them in complete sentences, and needs the written form for reinforcement of word order.

The object or action which a word represents is readily learned. He has only occasionally reversed word order, saying such things as, "The table is on the glass."

Fritz gives excellent auditory responses to structured stories, sentences, and words at a distance of about six to eight feet when a moderately loud voice is used. By auditory perception alone he can repeat up to three words selected from a known story, and then identify them on the blackboard. There continues to be a time lag before Fritz responds, usually correctly. He also continues to show no auditory discrimination of high frequency breath sounds.

Conclusions

Fritz's acquisition of language skills in reading, writing, speaking, and understanding is quite typical of a youngster with sensory aphasia. (His motor-speech problems are mild and secondary.)

Only when new words are presented in specifically patterned units (initially, the elements in speech drills) is he able to retain and recall them. At the end of the first semester, he had learned only 22 words and 20 elements, indicating that considerable repetition and practice were needed to set and maintain them. In addition, Fritz continues to need to apply full concentration when reading or he will read inaccurately, with incorrect or poorly articulated sounds.

As language became increasingly complex, Fritz showed the same pattern of errors in retention and recall; i.e., omitting sounds in words and words in sentences, incorrect or poorly articulated sounds, and reversal of words within a sentence. The same pattern of errors has been apparent in written work.

Structured responses within the auditory training period also follow a learning pattern: even with full concentration there is a time lag between stimulus and response, but generally the response is correct. This lag is frequently found in sensory aphasic children.

Fritz's hearing loss is sufficient to interfere with accurate reception of certain high frequency sounds, but he uses his hearing projectively, responding to environmental noises and voices. He also indicates that he has considerable residual hearing, which he can use only with *language he has been taught.* Only recently, after one and a half years of practice, has be begun to transfer auditory skills from formal drills to incidental speech. His ability to understand and use speech meaningfully has progressed only at the level at which he has been formally taught.

Fritz has shown excellent ability to associate words in written form with their lipreading form. He also readily learns to respond appropriately to the daily classroom commands in written form. In contrast to this skill demonstrated during drills, he has shown no aptitude for learning or comprehending incidental speech through lipreading alone.

In view of his interest and effort to use speech for communication, his demonstrated ability to use his residual hearing to discern language under specified formal teaching conditions, and his inability to learn language spontaneously through lipreading, he demonstrates a speech and language disability beyond that which can be accounted for on the basis of hearing loss alone.

CASE HISTORY #4

Name: Ira **Age:** 10–9

Background Information

Ira was adopted when 5 days old. His adoptive mother gave birth to a girl when Ira was 7 years old. As an infant, he was not demanding. Until 10 months of age he cried only when in pain. He was quite content to be left in his crib or playpen. Starting at 5 weeks of age, he slept from 6 p.m. to 6 a.m. and took a two-to three-hour nap in the morning and again in the afternoon. He was relaxed when fed, but he did not like to be restrained by being held. He preferred the playpen, in which he was first put at 2 months of age. He did not cry when left alone and appeared content. He spent his waking time banging rattles or playing with a cradle gym with his hands or feet. At several weeks of age, he began sucking his thumb whenever tired or hungry, and at 1 year he began rubbing the binding of a blanket between his fingers and would not go to sleep without it. By 2 years of age he began dragging the blanket with him whenever he felt tired, hungry, or frustrated.

He sat without support at 8 months and walked alone at 1 year. After he was able to sit up, he became quite active. Although he seemed content by himself as an infant, at 1½ years he was no longer willing to let his mother leave him. He got out of his crib or playpen by himself and cried for her. When mother left him alone for an hour or more, he would be pacified to a certain extent by watching television.

Ira showed no feeding difficulties. When a year old he threw his bottle out of the crib three nights in succession and thereby was weaned. He had already learned to use a cup.

At 22 months of age toilet training was initiated. After two weeks he had learned to point to his front or back when he wanted to be taken to the bathroom. By 25 months he was dry both night and day, but two months later began wetting at night again. When he went to his mother to be taken to urinate, he demanded that she pull his pants off, and would not urinate unless she did so. After urinating, he brought his pants to her so she could put them back on him. Although Ira wiped himself after defecating, his mother went over him again to make sure he was clean.

The parents first felt that Ira was deaf when he was a year old. He did not respond when they talked to him, and they had difficulty in getting his attention unless he saw what was wanted. At that time they tried to get him to look at them while they were talking, which he had not been doing. They felt he did not understand language. He responded erratically to sounds, such as a garage door closing. In contrast to his erratic responsiveness to auditory stimuli, he was very sensitive to visual stimuli, such as any change in light intensity.

He responded to gestures and made gestures himself, vocalizing while doing so. The vocalization was a tentative *ah* or *baa* sound. From 24 to 25 months he said "no more" when someone left the house or when he finished with food. At 26 months he was made to say "up" when he wanted to be picked up. Thereafter, for a time, he said "up" for every request. Ira did not imitate words either spontaneously or upon request. When told to say a word to get what he wanted, he cried. At times, in the midst of crying, he said "up." If asked to say another word, he sometimes shook his head negatively. On the rare occasions when he tried to say a word, he moved his mouth but finally only "up" came out. From one year on he babbled single syllables all day long, but did use "Ehmah" to designate mother. When he wanted anyone else he took that person's arm and led him where he wished to go. He made himself well understood by gesture. Looking at his parents while gesturing a request came about only after much parental emphasis.

Ira liked to do things for himself, such as getting his own drink, and would do things for his parents, such as taking plates off the table, so long as these tasks were not requested of him. He teased his mother by repeatedly doing things she told him not to do. When frustrated, he would fall backward and hit his head on the floor. Later, he banged his head while on his knees. He had his first tantrums at about 1 year. These consisted of crying with anger, throwing himself to the floor, and kicking his legs while on his back. When the parents ignored him, he began banging his head. This they stopped by spanking him until that became ineffective. They then put him in his room as punishment, where he cried for awhile, comforting himself with blanket and thumb. When allowed out of his room, he behaved well for about 20 minutes, then had another tantrum. If tired or ill, he was more prone to temper tantrums and controlling behavior, which was irritating to his mother.

At times Ira was affectionate and at other times accepted no affection at all. In general, he had no reserve with strangers and, if he kissed one, he kissed everyone present. Also, if he had a cookie, he wanted everyone to have a cookie. This type of behavior seems to have been associated with his demand that everything be routine and in its place. If something was disordered or if he spilled or broke something, which occurred often, Ira was upset.

Ira did not play with his toys in a way that denotes creative fantasy, but rather with rote orderliness. He was so fond of wheels he would turn over his bicycle or wind up his toys just to see the wheels spin. He also delighted in trying to take things apart.

When Ira was outside he rode his tricycle, rolled on the lawn, or chased other boys, then hit them in order to get them to chase him. In a ring game he insisted that everyone play. At a party, he usurped the center of attention. When he wanted something, if the door was open, he would walk into the house of a person who had befriended him.

Ira did not sit still to eat. He played with toys or got up to do something else while chewing his food. At 1 year he fed himself with his hands, then learned to eat with spoon and fork. However, because he ran around so much, his mother resumed feeding him.

Although Ira slept well, he often crawled into bed with his parents. They finally locked his door to keep him in his own room at night. He cried, kicked, and hollered, but later accepted it. At 2 years of age he was taken from his crib to a bed in a different room. For the first two weeks he preferred the crib, but then liked the bed.

Ira used to rock for hours on his hands and knees in his crib. He also rocked back and forth on his feet in his playpen. Later he rocked on his rocking horse, which broke when he was 29 months old.

He seemed insensitive to pain, and showed no reaction to falling or being bruised, unless he saw blood or the skin was broken. Then he became upset and insisted on immediate attention. Even after a bad injury he did not exercise normal caution. For example, he was doing somersaults immediately after cutting himself so badly he required stitches.

At 18 months, Ira began laughing when he saw his mother undressed and poked her in the buttocks. He has not reacted to seeing her in the shower or on the toilet. Once he lay on the floor and looked up her gown. He then laughed, and his parents laughed too. When he first started urinating from a standing position, he insisted his father do so with him.

Examined psychologically at age 2–8, Ira had a social age of 1.9 years, which gave him an SQ of 72, in the borderline range. He had a scatter of abilities from the first- to the fourth-year levels. In some ways he liked to be independent, such as by drying his own hands, but at the same time he refused to take off his socks. Usually he wanted to be dressed and undressed, although quite able to help other children with their clothing. Hence, this seemed to be an emotional interference rather than an inability.

Ira was, of course, penalized because of failure to communicate verbally or to interact socially at the appropriate level. He could not be trusted alone.

Although no formal test of intelligence could be administered because of his behavioral inaccessibility, Ira did comply with certain requests. He performed several nonverbal tasks at the 3– and 3½-year level of intelligence, which did not give a definite indication of intelligence, but seemed sufficient to rule out true retardation.

With his mother, Ira was alternately cuddly and demanding. He ran a toy car under the couch and wanted his mother to get it. When she refused, he got behind her on the chair, pushed her, and punched her in the back until she complied. While doing so, he rather plainly said "go." When she brought the car to him he smiled appealingly and said "up." While with his mother, Ira showed much more motor hyperactivity than when alone with the examiner. When the examiner asked Ira to do something, frequently he smiled and shook his head negatively. When asked again, Ira picked up the materials he was requested to use and instead indifferently returned them to the box. Then he would go about doing something else. Several times while being tested he ran out to his mother to take him to urinate. Each such time his activity level became increased.

When seen a second time, in different surroundings, Ira was casual about leaving his mother, showing none of the usual anxiety of a child his age. In the playroom Ira was preoccupied with lining up railroad cars and other vehicles. He kept looking up for approval. He made a long line of every vehicle in the room. Although he noticed the toy animals, cowboys, Indians, and miniature life dolls, he was interested only in the inanimate objects.

He quickly discovered how to operate an electric fire engine, then crawled around the floor as though hypnotized by it. When it went through a space too small for him, he blindly followed. When it smashed into his line of vehicles, he laughed with glee. However, he did not let it smash into them again. Instead, he began manipulating it as though he did not know how to work it, then tried to put it into an enclosed milk truck, as though to protect the aggressor.

While playing, Ira noticed that his hands were dirty. This upset him and he wanted to wash them immediately. When told that boys always got dirty when playing he calmed down, yet as he played he looked up anxiously several times and held up his hands.

He picked up a toy house from which all the furniture fell with a loud crash. He looked up sheepishly for reassurance that he would not be punished, then picked up one of the horses he had previously ignored. After lining up several horses, he brought a toy ape to the examiner and tried to put it in the examiner's mouth. He repeated the action with a tiger and lion. When the examiner put the lion on the floor as though it were running, Ira became frightened. He remained so until the lion was put on the table. Apparently to reduce anxiety, Ira had to urinate again. When taken to the bathroom, he indicated he would not urinate until his pants were taken down. When told that a big boy did not take down his pants but used the zipper instead, he complied.

When it was time to go, he did not want to leave the examiner to return to his mother. Then he wanted to take a toy with him, but made no fuss when this was refused. Upon returning to his mother, he ignored both her and the examiner to watch other children.

The examiner concluded that Ira showed signs of a severe emotional disturbance rather than of aphasia. In view of previously reported negative audiometric findings, it was suggested that he be treated for the emotional disturbance rather than simply to be put in a school for the deaf.

A year after this recommendation, the parents took Ira for psychiatric treatment. He was then almost 4. The original diagnostic impression was one of situational adjustment reaction associated with a speech disorder rather than a psychosis. However, the diagnosis was not completely agreed upon. One impression was that Ira had a minor degree of organic damage exaggerated by emotional disturbance, while another was that he had severe emotional disturbance of an autistic nature.

Ira had 73 treatment sessions, while his mother attended group therapy sessions. His response to treatment was good. He gained increased control, became significantly less negativistic, and developed an ability to relate more positively, although a tendency toward hyperexcitability remained.

The final diagnostic impression was that Ira had a central auditory disturbance (aphasia) and an emotional problem due to maternal rejection. Treatment was terminated at the suggestion of the clinic.

Audiometric Evaluation

When tested at 2 years of age Ira showed a 30 db loss, but was so uncooperative the results were not regarded as valid. When retested by GSR at 32 months, he showed no loss in any frequency range.

Ira was reevaluated in 1963, at 10–2. His hearing was assessed by means of pure tone and speech techniques. By pure tone, in the right ear he showed a 60 db loss at 250 CPS, a 75 db loss at 500 CPS, and a 95 db loss at 1000 CPS; and in the left ear, a 70 db loss at 250 CPS, a 65 db loss at 500 CPS, and an 85 db loss at 1000 CPS. With bone conduction he showed a 35 to 40 db loss between 250 and 500 CPS. The average loss for 500 to 2000 CPS was 90 db for the right and 83 db for the left. The best binaural average was 83 db. Speech awareness was obtained at a level of 64 db in both the right and left ears. A speech reception threshold was obtained in the right ear at 86 db. The conclusion was: "All of these scores agree well and indicate a profound, bilateral, sensory-neural deafness. Auditory discrimination scores could not be obtained."

When fitted with a binaural hearing aid, Ira was able to obtain a speech awareness level of 22 db. He was then also tested for auditory discrimination using no visual cues. He responded consistently at normal conversational levels and was able to discriminate remarkably well among the group of simple pictures.

Progress Summary

Ira had been enrolled in a school for the deaf, but the parents were dissatisfied with his progress. Moreover, at 7 years, he was diagnosed by an expert on aphasia as having sensory aphasia together with a hearing loss. For that reason he was accepted into a full-time class in The Pathway School. That was in September, 1963, when he was 10-3. He then attained on the WISC a nonverbal IQ of 125, in the superior range. In contrast, his Peabody Picture Vocabulary Test IQ was 35, in the severely retarded range. On a design reproducing test he showed a variety of distortions and inaccuracies consistent with a subtle organic problem.

After one semester the following was reported:

> Ira is working within the second level of the Association Method. The daily schedule includes vocabulary, recall of old vocabulary, stories, numbers, prepositions, and present progressive verbs. He receives four new vocabulary words per week, taught through speech drills for articulation purposes. He uses these words spontaneously as soon as opportunity presents itself.
>
> When Ira entered his present class, he was started on stories. Soon thereafter more complex stories, consisting of seven to eight lines, were begun. Despite previous lack of background, he has been able to keep pace with his group in lipreading and written activities. He also has had no difficulty retaining and recalling the sequence of sounds in words, words in a sentence, or sentences within a story. His lack of accurate speech has been his most difficult problem in the learning of new material. This apparently stems from insufficient opportunity to learn the sounds of the elements.
>
> Acoustically, Ira has given inconsistent responses to material learned in drill. His consistent ability to hear certain vowels suggests that his otherwise inconsistent response is more likely a result of insufficient auditory clues or inattention rather than actual fluctuating hearing. Moreover, environmentally he responds only to vibrations, such as a chair scraping.
>
> Ira's written work could be improved. He is always in a hurry and does not write neatly. He also leaves off word endings, such as *s*, and omits words, a sentence, or a question, to hasten through an assignment. When errors are called to his attention, he can correct himself. If made to do an assignment over, he will be more accurate.
>
> Being an active youngster, Ira must be structured much of the time to channel his energy properly. He then works willingly for the teacher in group activities and is pleased when he succeeds.
>
> Ira's spontaneous speech consists of simple sentences, words, and phrases. He is quick to gesture, however, rather than talk, and still must be reminded to express himself in complete sentences.

Conclusions

Ira has shown good ability in lipreading both structured and incidental language. This skill appears limited only by a lack of vocabulary and is not affected by the speed with which material is spoken or the complexity of sentence structure. In addition, he has easily learned new language through lipreading, without needing it in written form.

In auditory work Ira has shown inconsistency, but this appears due to the nature of the material given or to inattention, rather than to fluctuating hearing. That is, he readily discriminates certain vowels when they are placed in sentence structures which afford sufficient clues.

Ira has had no apparent difficulty learning to retain and recall sequences of sounds in words, words in sentences, or stories up to eight lines. His interest in speed rather than accuracy creates poor articulation, unless he is required by the teacher to speak carefully. When he is held to high expectations, there is no question of his ability to use words appropriately and in complete *simple* sentences. In addition, Ira has shown little difficulty in writing his lessons from recall without making spelling errors. He can also be taught a relatively complex new written sentence in one or two exposures and does not need the reinforcement of saying it for written recall.

In spontaneous speech Ira resorts to single words or short phrases and gestures for communication. This is not due to inability, since he does use appropriate simple sentences when clearly expected to do so; instead it seems to be the result of his haste and past habits.

Although able to learn new words by watching the teacher, he sometimes fails to imitate correctly, primarily because of inability to discriminate between voiced and breath sounds and difficulty in discerning less visual sounds. With continued building of behavioral controls and adequate structuring, Ira will learn by the whole-word lipreading approach, supplemented by written reinforcement primarily to achieve accuracy.

CASE HISTORY #5

Name: Donald Age: 12

Background Information

Donald first came to the attention of a large hospital in a low socioeconomic area when he was 7½ years old. He was suffering from anemia, nightmares, and apparent mental retardation. He was the oldest of four siblings, all of whom had a fusion translocation of chromosomes 13 and 22.

Father has been diagnosed as schizophrenic, and the mother has a limited intelligence and a speech defect. As a result, little history is available.

At birth Donald sucked well and apparently was both breast- and bottle-fed, being weaned from the bottle at 18 months. He crawled at 12 months and walked at 17. He was not toilet trained until 5 years of age, and had smeared feces on himself.

When 10 years old he was admitted to a treatment center, where he was described as: ". . . nonverbal, frightened, preoccupied with broken toys, withdrew from contact with people, tore his clothes, and had severe tantrums when frustrated. He had a marked startle reaction. He refused to be guided or helped in dealing with any tasks. He was toilet trained, ate well but gulped his food down, using his hands, as if he feared that it would be taken from him before he had had enough. He was never mean or vicious with the other children, although he did some teasing and seemed amused by his ability to frighten some of them. He was protective of his two sisters. He would sometimes strike adults in anger. The child's clothing was in poor condition and he was usually physically dirty. From the beginning, he seemed to enjoy the efforts made by our staff to bathe him and find better clothing for him."

The admitting diagnosis was: "Childhood psychosis, undifferentiated type, with mental retardation. Behavior manifestations were very severe anxiety, hyperactivity, turning of aggression against himself, negativistic attitude toward people rather than withdrawal into himself. His emotional disturbance is probably secondary to emotional trauma. The boy is probably aphasic, cause unknown. He cannot use speech for communication, although quite early in his stay it appeared that he understood the content of at least simple commands."

After six months at the Center, Donald was described as relating well with his sisters and the child-care workers while keeping away from the children, except for one boy. He enjoyed playing tag with the adults, but because he began hitting them and became upset when told not to hit so hard, the game was discouraged. He stopped slapping people on the buttocks, and has shown less interest in stroking their hair. However, he goes up to a worker, rubs her arm, saying "arm," and points to the elbow, finger, and wrist, naming each as he points. He also takes each finger, squeezes it tightly, and tries to bend the tip back and forth. At times he rubs his face with the person's finger or attempts to put it into his mouth. On one occasion he bit a worker's finger. Whereas he previously swept and cleaned objects with a sponge almost continuously, he has discontinued these activities.

He is interested in pipes and would like to turn the valves on any he can reach. He was ecstatic when a doctor took him to visit the boiler room. Later he was taken to the maintenance department and given a box of pipes and valves with which he worked until he fitted all the pieces together. Playing with building blocks and erector sets seems to be his main interest. He works well with them and constructs many forms accurately from pictures. He also put a 1,000-piece puzzle together, working on it for more than a month. He wanted to work on it all the time, without help. He has been very proud of the puzzle and all other projects completed.

Donald has become less aggressive and less easily upset. Now when he begins to feel upset, he jerks his body, shakes his head from side to side, and says "Wh, Wh," meaning *no*. He usually responds positively to firmness and a quiet voice, but when limits are set, he runs behind a door or squats under a table. He does not want to listen to explanations, but after the point has been gotten across, he seems no longer so upset. When angry, he used to cringe and put his arm over his face and head as if expecting to be struck. Now there is less cringing and more running and hiding. He also has changed from temper tantrums to more playful teasing and screaming.

In general, he is much less primitive, impulsive, and suspicious. He engages in constructive behavior, relates better, shows improved frustration tolerance, has decreased in negativism, and his interests have broadened. However, defensiveness and perseveration remain to a degree which label him as still quite immature.

When first tested at age 7–11 he showed an MA approximated between 5–0 and 5–6, giving him an estimated IQ of 68. The results were tentative because he failed to understand what he was supposed to do. His general impulsivity contributed to this. His performance was limited to simple puzzle material and to drawing, where the instructions could be easily pantomimed.

When reevaluated at 10–4, on the WISC he had a verbal IQ of 48 and a nonverbal IQ of 80. The report states:

> The question concerning Donald has been whether he was retarded, with good mechanical skills, or whether there was evidence of adequate intellectual endowment which could be expressed only through concrete material. The evidence is not clearly in favor of the latter. Donald is capable of functioning at the dull normal to average level on tasks which not only require mechanical ability (e.g., jigsaw-type puzzles), but those involving analytic and synthetic thinking, as well as conceptualizing perceptual material. His Draw-A-Man IQ of 82 adds further evidence of a dull normal rather than a mentally defective child. The quality of his performance is also good in that he often recognizes when he is right or wrong and works at correcting his mistakes rather than proceeding haphazardly.
>
> Donald has a vulnerable and extremely unevenly developed intellect. The vulnerability arises from his unstable work patterns. At times he can settle down and concentrate on a problem, but often he is distracted by social needs or, more important, by the compulsion to do a task in a hurry (a residual from his former reluctance to do anything while another person was present). On the Raven Progressive Matrices, for example, he would look at a design literally for a few seconds, quickly give his response, and then want immediately to go to the next design; efforts to make him slow down and think more about what he was doing led only to greater resistance. In a sense, it is remarkable that he can do so well in so little time. This tenuous control accounts for the fact that he does relatively poorly on tasks requiring sustained attention (his IQ on the Knox cubes was about 60, and on the Seguin formboard, 50, because he was distracted during all the trials). Thus, he is still far from functioning efficiently.
>
> Even more striking is his uneven development. Donald is still incapable of dealing with pictorial and symbolic material, and his limited speech prevents him from dealing with verbal problems. The Healey Picture Completion Test was not only poor quantitatively (he performed like a 4½-year-old), but the quality was equally poor. He seemed not to understand the nature of the tasks and did them more or less like jigsaw puzzles rather than responding to the symbolic content of the scenes. Although much better than two years ago, he still does not take in pictorial material. His verbal blocking has also greatly interfered with his comprehension of abstract ideas, such as alike and different, when these ideas are presented in verbal form. From his handling of the performance material, it is clear that he does use conceptual thinking; he does not grasp ideas expressed verbally.
>
> It is difficult to predict how much progress Donald will make in symbolic thinking. Although he may continue to gain, it is difficult to imagine how a 10-year-old boy will be able to overcome a lifelong blocking. . .

Speech and Language Evaluation

Referred to The Pathway School by the Center for an opinion as to whether he could be helped to develop speech and language, Donald was seen in 1962, when he was 9–11.

He moved in "stops and starts." For example, he seemed interested in one of the classrooms, started into it, stopped, started again, stopped, and finally went in.

He moved about the room, picked up various objects, and watched the children out of the corner of his eye.

During the speech evaluation Donald was able to imitate (usually correctly) most sounds by blurting them out some time after the stimulus. He seemed to lack the motor-speech *awareness* for producing the elements *f*, *sh* and *d*, although he could imitate the corresponding sounds *v*, *zh* and *t*, which involve the same lip and/or tongue placements. He also was able to imitate words and simple sentences intelligibly, but like a ventriloquist, without lip movements. He was able to recall in poorly articulated speech, when they were re-presented, some of the common objects he had previously named.

While he made no overt attempt to communicate with the adults present, Donald echoed intelligibly many of the sentences and phrases uttered by them.

He appeared to comprehend simple commands and could identify common objects merely by having their names said to him. His language concept level appeared considerably below that expected of a child with normal intelligence. It was thought unlikely, however, that his intelligence was so retarded as to cause total lack of communication.

In summary, Donald's most *obvious* difficulty appeared to be behavioral, even though this had improved sufficiently that he could profit from speech therapy.

Lack of lip movement suggested the possibility of some motor-speech difficulty, but this appeared to be secondary. At the next level of language usage, communication with others, Donald did not use words even for the everyday objects he wanted. Further diagnostic teaching was needed to ascertain whether this difficulty was created by motivation, insecurity in communicating, or inadequate retention and recall of sequences of speech sounds and word order. Donald's behavioral controls appeared adequate for diagnostic teaching to be effective.

Progress Summary

In January, 1963, the following reports was issued:

Behavioral Progress: Donald has been enrolled in the tutoring program at Pathway since June, 1962. He has received approximately 20 weekly lessons of one hour each, plus a review approximately four times each week with his housemother.

He had difficulty adjusting to a structured program in which only specific responses were acceptable. He showed poor self-control, attention, and concentration; there were unexpected gaps, too, in his verbal comprehension, but none of these seemed to be the result of inability to learn. Also, in Donald's approach to learning new responses, he persisted in certain socially unacceptable behavioral responses.

If tired, unsure of expectations, or unwilling to try a task, he laughs, plays with his fingers or some other object, looks around the room vacantly and/or occasionally rocks in his chair. As Donald has become more familiar with the general environment and the learning routine, these responses have occurred somewhat less often, but not necessarily with less intensity.

Although Donald's attention span has increased considerably, he has fair and bad days behaviorally. Only on occasion has his behavior been acceptable throughout an entire lesson. It is always possible, however, to pull Donald back into the lesson; it is simply necessary to do so more often on "bad" days, and consequently his progress is significantly hindered.

Academic Progress: Donald is presently working within the first level of the Association Method. He has learned to say, read, and write the following individual sounds and words: m, p, b, s, l, f, sh, t, ee, a, i-e, oo, o-e, ou, a-e; boat, bee, meat, mouse, soap, pipe, leaf.

Initially, Donald had eye-hand coordination difficulty in tracing elements. However, he now can reproduce single elements from memory. He does not consistently spell the words he has been taught properly, yet they usually contain the correct phonic components. For example, "boat" may be spelled *bote*.

Donald cannot yet recall more than two lines of a four-line drill from memory in writing, although, after considerable initial difficulty, he can recall four lines in speech.

In summary, Donald appears to have multiple problems, including disturbance, mild retardation, and motor aphasia. He has made slow but consistent progress in learning to read, write, and speak. So long as progress continues, it is valuable to Donald to receive lessons, but prognosis for his complete rehabilitation is not good.

In June 1963, the following report was issued:

Behavioral Progress: Donald has been enrolled in the tutoring program for about a year. Due to illnesses, he received only 12 lessons since the last progress report. During that period also it was not possible for him to receive help in practicing his speech lessons. When he returned, he had to begin again at a level considerably lower than prior to his illness. He had forgotten words in speech and written recall, and his attention-concentration habits had deteriorated.

Donald continues to learn slowly. His behavior has improved but still leaves much to be desired.

Academic Progress: Donald continues to work within the first level of the Association Method. In addition to the material listed in his previous reports, he can say, read, and write the following individual sounds and words: d, n, r, k, g, a(r), i, oi; light, cat, cow, bike, tie, boy, toe, feet, phone, coat, cake.

Donald's inability to retain and recall material in speech and spelling remains his greatest difficulty. However, when he left in June he was able to reproduce correctly a four-line drill in both speech and written form. He was also able to reproduce accurately some 18 words in speech and written recall, when the pictures were shown to him.

His housemother has accompanied Donald to each of his lessons and has consistently carried through the assignments given her.

In summary, Donald continues to learn slowly under this system, in a manner which we have found consistent with mild retardation. His prognosis continues to be poor. The question of whether he should continue to receive speech therapy at Pathway is dependent upon his continued opportunity to receive consistent daily practice in his lessons outside of school. Without that it is conceivable that he will lose what he has been taught.

Conclusions

Donald has shown multiple problems in learning speech and language: unacceptable and rigid behavioral responses to new material, difficulty in retention and recall in speech and writing, and, secondarily, mild motor-speech difficulties.

His condition would seem to be a complex of emotional disturbance, mild retardation, and a motor-speech problem which can not be clearly classified, but may be of organic origin.

This youngster has learned slowly and has had sufficient difficulty in adjustment to interfere seriously with his ability to attend and to concentrate. Despite improvement, his behavior has never been completely acceptable, even when he was able to work for the full period. Donald seems pleased when he succeeds in accomplishing a task, but often has extreme difficulty applying himself to it.

His ability to imitate language intelligibly is not consistent with motor aphasia or an aphasoid condition. From the educational standpoint, even though his motor-speech difficulty suggests organicity, it would not appropriately be classified as an aphasia.

CASE HISTORY #6

Name: Ruth **Age:** 8-9

Background Information

In 1962, when Ruth was 7, the psychiatric clinic caring for her provided the following information:

> Ruth, the second born of three children, was planned. The mother had an uneventful pregnancy, except for a sudden rise of blood pressure before Ruth's birth, and a normal delivery after 12 hours of labor.
>
> Before Ruth was 12 months of age, bilateral ear infections occurred, with temperatures ranging to 104°. Later she also had measles and chicken pox with slight fevers.
>
> She was bottle fed until 1½ years and was weaned by being handed a cup. Toilet training began at the same time, was unsuccessful, and was temporarily stopped. She was trained completely by 3½.
>
> Motor development was slow. She sat alone by 18 months, stood at age 2, and walked unaided by age 3.
>
> The parents first suspected deafness at 9 months, when Ruth did not respond to loud noises, but the pediatrician said she was merely "a little slow." This allayed their fears temporarily. Since age 3 she has used only single words which sound like mumbling or humming. Her one distinct word, "mum-mum," has not been used meaningfully. Ruth still makes her wishes known by stamping and pointing. She makes "hollering" sounds and laughs when she plays with other children.
>
> Ruth has always been a good sleeper, occasionally banging her head or rocking.
>
> When she was almost 4, her mother died of a sudden heart attack. She was then cared for by a neighbor. When returned home, a series of baby-sitters looked after her and her siblings while the father worked.
>
> At age 4, Ruth was tested audiometrically. She was fretful and cried throughout the testing. However, it was believed that she showed consistent response to sounds at a threshold of 62 db and that she was made aware of speech at 80 db. These findings were regarded as indicative of a moderate to severe nerve loss. Several months later GSR audiometric testing was done.

The left ear gave a pattern of responses to all frequencies up to 8,000 CPS at approximately a 70 db average loss. The right ear was not tested because she became too fretful.

Ruth was placed in a nursery school for youngsters with hearing loss. There she threw tantrums, screamed, and behaved in a generally frustrated manner when attempts were made to discipline her. It was also reported that the father was completely unable to handle Ruth, so that he usually simply gave in to her wishes. The result was a recommendation for Ruth to attend a school for the deaf as a residential student. When examined for admission to that school at age 4–10, she was regarded as "much more manageable" and easy to work with when tested intellectually, and so was admitted.

After three months she was expelled and referred to the psychiatric clinic. The school then described her as "hyperactive, distractible, inattentive," and the teachers were not sure that she had a hearing impairment. They reported that she showed a pattern of variable hearing which seemed to bear no relation to the intensity of sound. Ruth was also reported not to integrate into group activities, to have "obsessive concern with certain objects," to have been incontinent in classroom, to have unaccountably undressed in class, and to have shown "some tic-like formations." At the same time she was described as a lovable and clinging child, demanding a great deal of physical closeness from her teachers, and appearing to try hard to conform. When required to accommodate to change in the daily program, she went "all to pieces."

Ruth was examined at the psychiatric clinic when 5–10, in April, 1961. The following was reported:

> *Psychological Findings*: Ruth willingly took my hand to come to the office, but was so frightened of the elevator that she cringed and almost cried. On subsequent occasions she refused to ride the elevator. She entered into the testing situation easily, but did not respond to verbal instructions. On tasks easily communicated by gesture or demonstration, she generally made an adequate effort to respond. When she attempted something and failed, agitation was manifested by a shaking tenseness and a loss of manipulative control, and she moved to another activity or simply pushed away the material.
>
> She uttered guttural sounds but no meaningful speech. She effectively communicated by gesture. At times she seemed to go into an autistic reverie, smiling and not attending, yet her attention could be regained. The feeling was that she related, but minimally.
>
> She seemed to enjoy playing appropriately with toys. She also imitated motor noises while playing with a car, spontaneously put a watch to her ear, and seemed to like loud noises.
>
> Ruth was examined psychologically on two previous occasions, when 4–4 and 4–10. Although she was negativistic and difficult to test the first time and not the second, both examiners estimated her to be mentally retarded by about one and a half years.
>
> The present estimate of intelligence, based on the performance tasks of the Merrill-Palmer Scale, most of which can be administered by demonstration, indicates an MA of 4–1 and an IQ of 70. Attempts to measure concept formation, on the Columbia Mental Maturity Scale, failed, apparently because of inability to communicate the directions. The present social age is 5.2,

which indicates accelerated social development (when CA was 4–10, social age was 3.3).

Ruth is very concrete, and most of her successful performances are with materials which do not require the formation of higher level concepts. For example, she can replace forms in a form board with some skill, but putting together a simple puzzle is much more difficult for her (both tests at age 4).

In spontaneous drawing she likes to trace her hand and then note the similarity between it and the drawing. She did not draw a human figure, but completed a partially drawn figure (with many cues and help) at about the 3-year level. She can reproduce a circle only by tracing around the tip of her finger, but cannot consistently reproduce a cross.

Two audiometric reports suggest moderate to severe hearing loss, but also note that the examination was unsatisfactory because of emotional reactions. For that reason, and to test out the possibility that Ruth can hear but fails at a cortical level to derive meaning from the sound, a polygraph examination was administered. The procedure was to read from behind a screen meaningful material alternated with foreign language material while galvanic skin response, heart rate, and respiration were measured. Ruth did not respond with GSR changes (some individuals do not show much GSR fluctuation). There was a small but statistically significant variation in heart rate and respiration in response to the meaningful material. Although these measurements could have been affected by extraneous factors and there was no standardization of the sound stimuli, the suggestion is that Ruth can hear and understands what is said.

Ruth is presently functioning in the borderline range of intelligence, but this does not necessarily represent her potential. Her social age is contraindicative of retardation. She is cooperative and shows signs of relating to other people, although extremely tense and anxious. The qualitative features of the examination, as well as the history, suggest diffuse central nervous system damage or primary retardation. There were some indications that Ruth could hear and understand, but it seems likely that there is partial hearing loss. It may be that Ruth had difficulty in responding as expected by adults, was frustrated and frightened by her failures, and experienced other traumata which led to a partial autistic withdrawal which utilized the already weak modality of hearing. There has been sufficient ego development and improvement in her behavior over the last two years that continued progress can be expected. It seems likely that she could profit from expressive therapy, group therapy, and specific educational training.

Ruth was seen on numerous visits to the clinic during April and May, 1961. At the time of intake, she showed a marked panic reaction to elevators, cobwebs, and changes of location. In going from one room to another, she had psychotic-like temper tantrums and at times cried inconsolably. She showed obsessive-complusive preoccupation with hair and with the arrangement of blocks and other toys. At times she would stop playing and stare into space in a withdrawn manner. She had difficulty in relating to the various examiners.

Speech: At no time was there any audible speech, only frequent bursts of humming and screaming. She often ground her teeth for prolonged periods.

Hearing: There is some evidence that Ruth can hear, although it is selective and obviously not related to the intensity of the sound. At times she com-

> pletely withdraws and shuts off outside stimuli. At other times she seems to respond to moderately loud stimuli. Her lack of attentiveness and her autistic-like behavior appear to be more responsible for her seeming deafness than an actual severe hearing loss would be.
>
> *Affective Control*: Ruth showed poor ego control of emotional displays. She cried and had severe temper tantrums over minimal frustration and for little or no external reason. She indulged in rocking and head-banging at times, and had severe anxiety, bordering on panic, over the smallest things.
>
> *Relationship Patterns*: In the beginning, there was a distinct lack of relationship with the examiners. This gradually gave way to a rather tentative relationship with a female worker who spent much time with her.
>
> *Autistic Preoccupation*: This child shows many autistic features, including autoerotic behavior, such as masturbating on toys and a fetish-like interest in the worker's hair. In addition, she frequently hums and grits her teeth and appears preoccupied. She has a short attention span, and it is difficult to attract and gain her attention.

After a two-month diagnostic study, Ruth was seen by an expert on aphasia. She was regarded as a mildly retarded child whose IQ would probably come up to borderline level, as probably somewhat deaf, and as having both sensory and motor aphasia. In addition, it was felt that the severe emotional distrubance would have to be cleared up before Ruth would be amenable to the methods used to train aphasic children.

The clinic concluded that Ruth had the multiple handicaps of: (1) a mild degree of retardation, (2) slight to moderate deafness, (3) aphasia of both sensory and motor types, (4) a definite autistic overlay to the above three organically-based defects.

A summary of treatment dated June, 1962, states:

> Ruth began treatment in May, 1961. It was geared to establishing a relationship within which to work on her emotional problems and her autistic withdrawal, and to introduce educational material as she became emotionally ready.
>
> During the first three months she became less fearful and more communicative with her therapist. They worked on simple commands until she eventually responded to a verbal "no" unaccompanied by gestures. Ruth became more cooperative. Unfortunately this relationship had to be terminated when the therapist unexpectedly left the clinic. Ruth was assigned another therapist, but throughout the fall could not really get started because of difficulties in transportation to the clinic.
>
> The present therapist started with Ruth in December, 1961, seeing her for two treatment hours per week. Considering her autism, Ruth moved rapidly into the therapeutic relationship. In therapy her separation problems and her feelings of having lost significant persons in her environment are much in evidence. She is fearful of relating again lest there be another loss. Her negativistic behavior is designed to determine whether that person also will leave her, if she is "bad" enough.
>
> Her lack of speech is frustrating to her, and although she attempts to communicate and to learn, she gives up easily, becoming anxious and upset. Kind but firm limit-setting is also an important part of the therapist's work. Word

and number concepts are introduced gradually within the framework of a developing relationship. The latter is of primary importance in her present treatment.

In July, 1962, Ruth's therapist referred her to The Pathway School, stating that Ruth's therapy has achieved results with the autistic overlay but it was not expected to affect the aphasic problem. Treatment for the latter was sought.

Progress Summary

After 11 months of one-half-hour-per-week sessions in The Pathway School speech clinic, the following was reported:

> Ruth continues to show distractibility during her lessons, particularly if she does not meet with immediate success or if she becomes fatigued. She changes the subject and shakes her head "no," or shivers and rapidly shakes her hands, although the latter has occurred only occasionally during the past few months. In general, a change of activity will pull her back.
>
> She is able to trace and copy sounds and words, and can write these from memory.
>
> Ruth has considerable difficulty in acquiring both verbal and nonverbal concepts. For example, where she was expected to place a ball on a peg, it was necessary both to demonstrate this for her and to take her hand and perform it with her several times before she responded consistently.
>
> Auditorially, Ruth responds to some noisemakers and loud sounds. She has indicated an ability to discriminate albeit inconsistently, among grossly different noisemakers or voiced sounds. However, without considerable practice, it was impossible to obtain responses to any sounds.
>
> In lipreading, Ruth can be given an element or word she has learned, then turn and find it among a written group of three. However, she cannot lipread words which she has not been taught formally.
>
> Ruth has learned approximately 24 elements and 17 words through formal teaching, but does not use them in spontaneous speech. She has learned to respond to two simple commands during her lessons: "come" and "sit down."
>
> Within drill situations, she has accurate articulation. However, speech-motor difficulties cause her difficulty in making new sounds. Her voice quality is generally nasal and breathy, but she is able to produce a few vowels with good voice and is beginning to transfer this voice quality to other vowels and learned words.

Conclusions

Based on what she has shown educationally during her speech lessons, Ruth appears to be (1) mildly retarded, as indicated by her slow rate of learning and difficulty in acquiring nonverbal concepts; (2) disturbed, as indicated by her atypical shaking behavior and occasional pulling of hair; (3) deaf or severely hard-of-hearing, as indicated by her need for loud sounds; and (4) aphasic, both sensory and motor, as indicated by her inability to transfer lipreading skills to informal situations and difficulty in motor-speech activities. Prognostically, the development of speech and language is possible on a limited basis.

CASE HISTORY #7

Name: Ralph Age: 9-4

Psychodiagnostic Evaluation—November, 1962

Presenting Problem: Ralph is a fourth-grade pupil referred to The Pathway School because he is achieving poorly due to a long-standing reading difficulty.

History: Information was obtained from father and mother, 32 and 34 years old respectively. Ralph, their only child, was born after two and a half years of marriage. The marriage was never happy, and over the years Ralph's difficulties became a focus for parental discord. Contemplating divorce some months ago, the parents were persuaded to seek marriage counseling. According to the mother, the counseling program was terminated because of her husband's resistance.

Mother's pregnancy was full term and uneventful until her feet swelled about two weeks before delivery. She had a difficult 12-hour labor, and birth was by breech presentation. The baby was placed in an incubator, the mother was told, to enable him to breathe more easily because the delivery had been so difficult.

Mother felt pleased when she first held Ralph at two days of age. He was a hungry baby, "constantly crying for something to eat." He was breast-fed and given a supplementary bottle. Breast-feeding was discontinued at four weeks "because the milk caked." Ralph first drank from a cup at one year, but was not weaned from the bottle until he was two. He had no difficulty in the transition to solid foods.

When 3 weeks old, Ralph was found on the floor beside his coach, from which he had apparently tumbled. The pediatrician examined Ralph and found "nothing to be alarmed about." At 6 months Ralph had a severe attack of croup, but recovered without apparent ill effects.

At 3 months he was crawling, at 6 months he could stand, at 8 months he sat without support and walked holding on, and at 12 months he walked independently. Thereafter he was over-active and "seldom sat still to examine things." Speech development appears to have followed a normal course.

Between 2 and 3 years of age Ralph was cared for by his maternal grandmother while his mother worked. He was toilet trained during that time, after four months of effort. Ralph attended nursery school from then until 4½ years of age, adjusting well.

In contrast, he adjusted poorly to kindergarten at age 5, being restless and overly aggressive. Behavior in first grade was reported as "wild." He tormented his classmates and would not pay attention. However, his grades were good. In second grade he became increasingly stubborn, poked children with a pencil, and would not cry when punished. He also began to manifest reading difficulties. In third grade his reading problem became more evident, but spelling and arithmetic were good.

Father described Ralph as a bully, aggressive and domineering. Ralph always wanted to be the leader and found it hard to play with other children without bullying or teasing them. He also stole money from home, apparently to buy the friendship of his peers. Father stated that he got along well with Ralph at times, but at other times Ralph paid no attention to directions. When father was insistent, Ralph sulked. Another complaint was that Ralph was careless and messy, not straightening up after playing with his father's tools. He also played in his good coat, not caring whether it was ripped or not. At times he did his homework well and at other times was "a blank wall," getting more and more frustrated. He read words, not sentences, and did not seem to understand what he was reading. When questioned about the content of his reading, he made up answers. This resulted in arguments between Ralph and his father.

Mother described Ralph as sensitive, wanting to be liked by everybody, but carrying a chip on his shoulder. He was defiant toward her and did whatever he knew would get on her nerves. She said she tried to find forms of punishment other than spanking, but she believes that after Ralph misbehaved, he wanted a spanking. Then he was affectionate with her. Mother also described Ralph as messy, particularly in the bathroom. Ralph asked his mother to dress him and when in a hurry she did. She regarded him as spoiled because he had gotten everything he wanted. He nevertheless complained about whatever was bought for him, and was careless with his toys. When reprimanded, he would retort, "I'm going to tell my father, and you'll get it." Mother stated that her husband criticized her for haranguing Ralph when giving him directions. In turn, she thought he was too harsh and therefore intervened. Both parents agreed they had put too much pressure on Ralph.

Ralph was fond of having his parents tuck him into bed. Often he asked his mother to tell him a story, to scratch his back, or to lie in bed with him for awhile.

His one nervous, irksome habit was nail-biting. His parents thought he had never masturbated excessively. His sexual information appeared relatively scanty. For instance, a year before he referred to his mother's breasts as muscles, and later seeing a female cousin urinate, exclaimed to his mother, "she pees different than me —will she ever be like me?" Mother was embarrassed, but tried to answer such questions.

Health history was negative with respect to exceptionally high fevers, convulsions, concussions, or surgery.

In the Test Situation: Ralph was a friendly, smiling youngster who showed chronic anxiety by sporadic sighing, intermittent hoarse thickening and lowering of his voice, mild restlessness, frequent dropping of test materials, and irritable impatience to finish tasks. It was, nevertheless, fairly easy to keep him working.

He was given the following tests: Wechsler Intelligence Scale for Children, Bender-Gestalt Test, Temple Individual Word Recognition Tests, Temple Informal Reading Inventory, Temple Spelling Survey, Gates Reading Survey, Stanford Achievement Arithmetic Computation Test, House-Tree-Persons Test, Thematic Apperception Test, The Blacky Pictures, and Rorschach.

Intelligence: Ralph's verbal IQ was 97; nonverbal, 100; and overall, 99—all in the average range. He showed considerable intra- and intertest variability, however, indicating that he was not functioning optimally. In the verbal area Ralph's best score, at the bright normal level, was achieved on a test of mental arithmetic, which measures concentration.

On the test of attention span, his passive attending was dull normal; his moderately effortful attending, bright normal; and his overall attending, average. These results suggest that anxieties adversely affected Ralph's passive attending, but that the anxietal encroachment was not sufficient to impair volitional attending. Of special interest was the fact that perseverative-like interferences were observed on both parts of the attention span test.

On all remaining verbal tests but one, Ralph scored at the average level. On the test of factual knowledge he showed a combination of conceptual generic spread and stickiness which was distinctly organic-like: asked to name the seasons of the year, he said, after a long pause, "October . . . December . . .(E. That's a month. What time of the year is it now?) November tenth, 1962. (E. That's the date—is this a warm or a cold time?) Cold. (E. What's the name of a cold season?) Winter. (E. So—what are the four seasons of the year?) Winter, Fall, Spring. . . . (very long pause) November!"

On the test of inductive reasoning Ralph missed the first item because he became fixated on the differences rather than on the similarities of the items to be categorized, and the rest of his responses were concrete or functional rather than abstract. To one item ("In what way are a scissors and a copper pan alike?") Ralph responded, in sticky and arbitrary fashion: "Both can cut." With progressive structuring, he was able to improve his answers in the abstract direction, though not markedly. In general, his relatively rigid and concrete conceptualization on this test was consistent with an organic-like impairment of the abstractive powers.

Ralph's lowest verbal score, at the dull normal level, was achieved on vocabulary. His performance was uneven. Although he showed a potential scoring ability at the bright normal level, he was penalized for overly-concrete conceptualization. For instance, he defined *donkey* as "something like — he's real stubborn, he has four legs," and *umbrella* as "something round — there's a stick in it. . ." He also gave another example of generic spread, defining *cushion* as "a chair." (E. A chair?) "Oh, it's a pillow." In general, Ralph's impaired powers of conceptualization on this test were distinctly organic-like.

Among the nonverbal tests Ralph scored at the bright normal level on analytic-synthetic conceptualization and symbol transcription. Nevertheless, his performance on the former was uneven and showed organic-like rotations.

His ability to discriminate essential from non-essential details was average, with an uneven performance. He also pointed to, rather than verbalized, several of his responses, suggestive of the impaired verbal conceptual powers of the brain-injured child.

Ralph's poorest nonverbal score (and poorest of the entire test), at the borderline level, was on social perception. This requires objective foresight as well as social insight and is often a stumbling block to the brain-injured child.

On a design-drawing test, finally, Ralph showed ordering difficulties, dot-for-loop substitutions, wavering lines, angulation difficulties, and a variety of distortions and inaccuracies consistent with an organic problem.

In summary of this section, Ralph showed at least bright normal intelligence but was currently functioning at an uneven average level apparently because of a combination of organic and emotional interferences. In particular, his passive attending was relatively poor, his conceptualization was often rigidly sticky, concrete, or tangential, and his perceptual-motor function showed a variety of subtle, organic-like impairments.

***Achievement*:**

GATES READING SURVEY (2)

SUBTEST	GRADE SCORE
Vocabulary	2.6
Speed	2.5 (Accuracy 29%—Very Low)
Comprehension	2.1
Average	2.4

TEMPLE INDIVIDUAL WORD RECOGNITION TESTS

LEVEL	FLASH %	UNTIMED %
Preprimer	93	100
Primer	90	100
First	75+2	100
Second	40+1	85

TEMPLE INFORMAL READING INVENTORY

PERFORMANCE LEVEL	READER LEVEL
Independent	None
Immediately Instructional	Preprimer
Basic Instructional	First
Frustration	Second

TEMPLE SPELLING SURVEY

LEVEL	% SCORE
1	90
2	65

STANFORD ACHIEVEMENT TEST (ELEMENTARY, K)

SUBTEST	GRADE SCORE
Arithmetic Computation	3.9

The results of the standardized reading test placed Ralph roughly at the mid-second level, with his comprehension somewhat lower than that, and his reading accuracy very low. These results indicated almost a two-year retardation in reading. The actual picture, unfortunately, was even worse. Standardized tests are so constructed as to offer a variety of dubious aids. By taking advantage of relatively short passages, "multiple-choice" clues, rereading and guessing opportunities, many disabled readers achieve spuriously high scores.

Thus, the individual word recognition tests revealed Ralph's sight vocabulary (store of immediately recognizable words) as wholly inadequate beyond the first-reader level, although he seemed to have good word-analysis skills. Difficulties with medial vowels and vowel blends were particularly noticeable.

With respect to contextual reading, principally because of word recognition needs, Ralph had no "independent" or relatively trouble-free reading level; he was "immediately instructional" (had noticeable needs) at the preprimer level; was "basically instructional" (had unignorable needs) at the first-reader level; and was "frustrated" (made more than one recognition error in 10 running words) at the second-reader level. Ralph also had a secondary comprehension problem, of a type consistent with organicity. Given reading passages which were somewhat out of context and relatively loosely organized (even though at a simple level), Ralph showed a markedly deficient comprehension. With highly structured passages which provided self-completeness and many concrete details, Ralph showed a highly efficient comprehension, provided that the passage was couched in a first-reader vocabulary. Beyond that level Ralph's error rate was about 30%. Up to and including that level, it is important to note, too, his pace, phrasing, and rhythm were quite poor. In brief, Ralph functioned about three years below grade level in reading.

In spelling Ralph was independent at the first level, but did not quite meet instructional criteria at the second level, making him more than two years retarded in spelling. Difficulties with the terminal *e* were particularly noticeable among his spelling errors.

In arithmetical computation Ralph functioned at the terminal third-grade level. However, since several errors appeared due to simple attentional lapses, his actual computational skills were probably at grade level.

In summary of this section, Ralph exhibited a reading disability serious enough for him to be basically instructional only at the first-reader level, principally because of word recognition needs. He was also seriously deficient in spelling. In arithmetical computation, however, he functioned at about grade level.

Emotional Status: The personality picture was of an over-impulsive, labile child struggling to control his instinctual impulses but not succeeding. The control devices were mainly obsessional—pseudointellectualization, isolation, reaction formation, etc.—but were not holding well at all. A favored perceptual mode involved overattending to the discrete and trivial aspects of experience to ward off the anxiety linked to larger segments of experience and to permit him a sense of mastery and productivity, however spurious. Organic deficiencies and obsessional traits appeared to have joined forces to bring about conceptualization notably rigid and concrete, and sporadically confabulated or unrealistic.

Ralph's self-image was extremely negative, marked by feelings of defectiveness and apparently reinforced by experiential factors, by a strong sense of guilt in connection with familial conflicts, and by masturbatory guilt. Oppositionalism also was present, perhaps in part as a defense against his negative self-concept and in part reflecting an historic power struggle with an overly punitive and demanding mother. Apparently Ralph had attempted to resolve his conflicts by partial identification with a mother figure only to experience conflict-laden passive, incorporative impulses toward the ambivalently regarded father figure. Then he could not receive the comfort or support he craved from either parent, nor, because of his primary identification with the mother and his ongoing fear of the father, could he achieve other than a token identification with the latter. The latent opposite-sex role of both parents, furthermore, appeared stronger than usual and no doubt compounded Ralph's own sexual role confusion. Blocked in the expression of his instinctual impulses toward the parent figures, and further blocked in his struggles for assertive masculinity or competence in the academic area, Ralph developed a heavy burden of frustration.

Lacking both volitional and built-in anxietal controls, and having poor obsessional defenses, he periodically sought release from tensions through reckless and/or belligerent activity.

Prognostically, without intervention, Ralph's adjustment—poor as it has been—may be expected to worsen (1) with continued disharmony at home, (2) with continued frustration in learning, and, especially, (3) with the approach of adolescence, when increasing biological and environmental pressures may be expected to exacerbate the present difficulties.

Conclusions: Ralph showed at least bright-normal basic intelligence but functioned at an uneven average level, apparently because of interwoven organic and emotional interferences. His passive attending was relatively poor, his conceptualization frequently rigid, concrete, and/or tangential, and his perception subtly deficient. The test data indicated that his suspected organicity was of a minimal static type. The historical data consistent with such a condition include the difficult labor and delivery, and the overactivity when he gained motility. Ralph's major emotional difficulties appeared to involve his need to cope with intolerable feelings of basic defectiveness and inadequacy, resentment caused by parental punishment and rejection, confusion over his sexual role identification, guilt regarding his erotic impulses, inability to gratify his instinctual impulses in a socially acceptable fashion, and a particular inability to achieve self- and environmental esteem in the learning situation. Characterological constriction and obsessional mechanisms, both working poorly, have been used to ward off Ralph's considerable anxietal burden. The obsessional defenses apparently reinforced the organically based interferences with conceptualization, but neither the characterological nor obsessional defenses have been sufficient to cope with the inherent lability.

Educationally, Ralph showed a severe disability of about three years retardation in reading and somewhat less in spelling.

From the available information, it would appear that Ralph should attend a special school where he could receive individualized instruction in a small group setting from trained teachers who use special techniques. There, he could, for example, receive instruction in reading at the first level and in arithmetic at the fourth-grade level, thus moving ahead at his own pace rather than that of his class. Pathway School's Division for Brain Damage would be best suited to Ralph's needs, but because of limited enrollment he could not be placed there before September, 1963.

An interim program should include intensive tutoring in reading and spelling. Ralph also should have individual psychotherapy suitable to his needs, while his parents receive counseling and/or treatment. Finally, although it is unlikely that Ralph's difficulties require medical help, the parents may wish him to have a neurological examination.

Conference with Parents: When the psychological findings were discussed with the parents, the father in particular resisted the conclusions and recommendations. It was difficult for him to accept the fact that there was an organic basis for Ralph's school problems. Only after six months of increased school difficulty and behavioral disturbance on Ralph's part, and increased marital discord on their part, did the parents even seek a neurological consultation.

Neurological Examination: The neurological report, dated June, 1963, states that Ralph was sound both on formal neurological examination and on the "soft" signs. Nevertheless, the neurologist agreed with the EEG report of "excessive irregularity in his wave forms, predominantly on the left," and with the psychological findings. We could find nothing in the history to explain the basis for the "electrical and thinking abnormalities," but he did cite the fact that "even before school started, he was so bossy that other children in the neighborhood dropped him after brief acquaintance." Also cited were "six nocturnal episodes at age 5 to 6 in which he aroused from sleep, seemed frightened and disoriented, addressed his parents but spoke in a disconnected and rambling fashion, without memory for these events the next day." These episodes were regarded by the neurologist as "neither clearly seizures nor dreams, but something of both," yet "he has had no recurrence in the past four years, despite increasing emotional stress, and has never had any of the more conventional epileptic symptoms."

The report concludes: "I think Ralph has stresses from two independent sources: (1) academic, because of his basic organic abnormalities in mentation, as evidenced in his EEG abnormality; (2) parental, originating in their inability to solve their own adjustment problems."

CASE HISTORY #8

Name: Wade **Age:** 16–9

History

Wade is the younger of two children, his sister being six years older and a college student.

Pregnancy and delivery were normal, and Wade was a full term baby. From the beginning he ate and slept poorly. Although breast-fed for five weeks, he had to be changed to a formula because of colic, and the right formula was difficult to find. Although the colic stopped at 6 months, he remained a "fussy" eater throughout early childhood.

Development was regarded by the parents as slow. He walked by a year and then was hyperactive. After the colic stopped, he rarely cried and did not babble. He was 2 years old before he said words other than "da-da." Although both parents and his sister talked to him, his speech developed slowly. Mother also felt that he was slow because he did not accomplish bladder control (both diurnal and nocturnal until 2 years of age and bowel control until 4. Because Wade was constipated, the pediatrician recommended many suppositories. He was also put on the toilet for long periods of time only to soil after being removed.

The parents were also concerned about Wade's "active thumb sucking" and drooling until age 6, his poor coordination, and poor speech.

Wade remained a poor eater and sleeper until he was 7. Often he walked into the parents' bedroom and stood there silently. Later, to prevent his getting up, mother slept at times in Wade's room, which had two beds. It was not until age 6, when Wade had psychiatric treatment at a Mental Health Clinic (to which he had been referred because of speech and other developmental problems) that the parents learned Wade had had nightmares, since he had never cried or shown other outward signs of fear. The psychiatrist advised the mother to stop sleeping in Wade's room, but until age 12 Wade reported having bad dreams.

The parents' search for professional help began when Wade was 6. Until then, the pediatrician had continually advised the parents not to be concerned, that Wade "would outgrow it." After a number of examinations the parents were advised that Wade was of limited endowment because of brain damage evidenced by EEG disturbance in the left "temporo-parieto-occipital region." He was regarded as immature, with a limited attention span, and severe difficulties in reading and figuring.

At the psychiatrist's request, Wade was promoted to second grade but the teacher was advised not to put him under undue stress. Although the boy was marked only on his own individual progress and effort, he made little progress in number concepts and reading, and was retained in second grade. Given a social promotion to third grade, Wade participated little, became withdrawn and unhappy, and was a discipline problem. For obvious reasons, the teacher promoted him to fourth grade, where he was diagnosed by the school psychologist as mentally retarded and assigned to a special class at age 11. Wade made no progress there, and was extremely unhappy.

He was then taken to a specialist who said he had a severe dyslexia of the auditory type, plus "some involvement of the visual interpretative function." A large private school for retarded and disturbed children was recommended, and Wade was placed therein at age 12. He remained there for three years, visited home two weeks a year, was unhappy, and, according to the parents, made no progress.

After being reevaluated, Wade was admitted to The Pathway School as a residential student in September, 1962, at age 15. Since then he has had not only the regular program, but also twice-a-week psychotherapy, and has been in residence with understanding and supporting houseparents.

Psychodiagnostic Reevaluation

Wade was reevaluated in February, 1964, at age 16–8 to assess his progress in order to plan future remedial steps.

In the Test Situation: Wade's physical appearance had changed notably since he was seen in August, 1962. Then he was a slender, quick-moving boy of about average height for his age. Now he was a well-muscled six-footer. In the previous testing session, also, Wade was passively cooperative but with some signs of fatigue and boredom as the work proceeded. This time he was narcissistically over-involved in his general attitude. On the structured tests (that is, the intelligence and achievement tests) he showed notable hypersensitivity to the threat of failure and frustration. He was often irritable and upset by the awareness of his slow or ineffective thought processes, and needed much reassurance. He often checked the scoring procedures to see how he had made out, and if wrong, would fuss and fume and rant at the examiner. He was particularly sensitive to his lack of academic skills, especially in the reading area. On the individual word recognition test, for example, his realization that he had made an error would be followed by vituperative epithets, histrionic fist-banging, angry refusals to go on, teary-voiced complaints, laments, and excuses. Several times the testing had to be interrupted for an explanation of the reasons for it so the examiner could disengage himself from the role of a critical authoritarian figure. This gave Wade a choice whether or not to continue, and served to calm him down so he could go on. In general, Wade strove to give a good account of himself during this testing, but because of his narcissistic hypersensitivity to failure and frustration, it was rather trying for him.

Intelligence: The following compares Wade's present scores with those obtained when he entered Pathway:

IQ	WISC, Aug., 1962 (CA 15–2)	WAIS, Feb., 1964 (CA 16–8)
Verbal	72	94
Nonverbal	79	95
Overall	73	94

In 1962, Wade's intellectual functioning was in the borderline range and in 1964 was in the average range. He gained a gratifying 21 points in his overall IQ.

Wade's subtest performance levels are presented for comparison:

Subtest	Level, Aug., 1962	Level, Feb., 1964
Information	Borderline	Average
Comprehension	Dull Normal	Average
Arithmetic	Moderately Retarded	Borderline
Similarities	Mildly Retarded	Average
Digit Span	Borderline	Borderline
Vocabulary	Dull Normal	Dull Normal
Picture Completion	Dull Normal	Average
Picture Arrangement	Mildly Retarded	Average
Block Design	Borderline	Average
Coding or Digit Symbol	Average	Dull Normal

These results show (1) extraordinary gains on the tests of inductive thinking (similarities) and social perception (picture arrangement); (2) considerable gains on factual knowledge (information), social judgment (comprehension), and analytic-synthetic conceptualization (block design), as well as (utilizing age group norms) concentration (arithmetic); (3) little or no changes on attention (digit span), vocabulary, and ability to discriminate essential from nonessential details (picture completion); and (4) a noticeable decline on the timed test of transcribing arithmetic-like symbols (coding or digit symbol).

Further analysis of Wade's subtest performances shows that on the test of factual knowledge he missed some of the easiest items (he became perseveratively confused in organic fashion on the weeks-in-the-year item), but, judging from the level of the items he succeeded on, he has a bright normal potential on this test.

In 1962, on the test of inductive thinking Wade "... scored at the mildly retarded level, turning in a notably uneven performance characterized by overly concrete thinking. However, with progressive structuring, Wade was able to improve his performance on this test sufficiently to show a near average potential..." Now he showed an occasional lapse into overly concrete and rather forced thinking—for instance, he said that a table and a chair were alike in that "you put stuff—things—on it," but he gave several good abstract answers.

Wade's social judgment remained a bit uneven, but the quality of his conceptualization improved, suggesting a bright normal scoring potential.

Wade's vocabulary was similarly uneven and at times overly concrete, but gave evidence of at least average scoring potential.

His concentration showed improvement, but only comparatively. His work was overly slow, and he required frequent repetition of the orally presented problems. Despite this, Wade had at least a dull normal scoring potential on this test.

On the attention span test Wade was able to recall four digits both in the order of presentation and in reverse. Previously he could recall five forward and three in reverse. These results suggest continuing difficulties with attention, particularly passive attending, his moderately effortful attending being near average.

Unevenness remained in Wade's ability to discriminate essential from nonessential details, but the scoring potential was bright normal.

On the tests of analytic-synthetic conceptualization and social perception Wade's present work was no longer organic-like.

The reason for his lowered score on transcribing symbols appeared to be due to perfectionistic strivings; Wade's symbols were neatly done and in general his work was more painstaking than formerly.

Finally, Wade's design reproduction again was neat and accurate, but continued to show organic-like rotation tendencies. Also, his visual retention declined in the number of designs he could recall.

In summary of this section, although Wade showed signs in 1962 of an average intellectual potential, he could function only at an uneven borderline level. Now he functioned in the average range and even gave some signs of a bright normal potential. On the other hand, he still has noticeable difficulties with attention and concentration and he could profit especially from development in vocabulary skills.

Achievement: Wade's test results are presented for comparison:

TEMPLE INDIVIDUAL WORD RECOGNITION TEST

	AUG., 1962		FEB., 1964	
LEVEL	FLASH %	UNTIMED %	FLASH %	UNTIMED %
Preprimer	93	100	100	100
Primer	85	90	90	100
First	65	90	80	95
Second	47	60	75	85
Third	—	—	74	88
Fourth	—	—	20	40

TEMPLE INFORMAL READING INVENTORY

	AUG., 1962	FEB., 1964
PERFORMANCE LEVEL	READER LEVEL	READER LEVEL
Independent	None	None
Immediate Instructional	Preprimer	Preprimer
Basic Instructional	Preprimer	Third
Frustration	Primer	Fourth

STANFORD ACHIEVEMENT TEST

	AUG., 1962	FEB., 1964
	GRADE SCORE	GRADE SCORE
SUBTEST	(FORM ELEM., K)	(FORM INTERMED., J)
Arithmetic Computation	3.4	5.0

Wade's sight vocabulary (store of immediately recognizable words) now was adequate at the third-reader level, whereas in 1962 it did not quite come up to the first level, a gain of more than two years. On the unfavorable side, the sharp fall-off between the third and fourth levels (an organic sign) indicates a rote and limited type of sight recognition skill. Notable also were his continuing organic-like kinetic reversal tendencies (e.g., "break"/*bark*, "try"/*tire*, "blow"/*bowl*, "wrote"/*wore*).

Wade now (1) had no "independent" (trouble-free) reading level; (2) was "immediately instructional" (had noticeable needs) at preprimer; (3) was "basically instructional" (had unignorable needs) at third; and (4) was "frustrated (bogged down for lack of adequate recognition skills) at fourth level, his oral reading at third now was weak in phrasing and rhythm, while his "silent" reading tended to be "subvocal" and slow. Wade's skim reading skills also were not good.

In arithmetical computation Wade ranked at the beginning fifth level, a gain of about a year and a half in the similar period between tests. However, his work was done slowly, as time ran out he began to skip problems, and judging by the difficulty of his last successful answers, his actual skill development may be as much as a year greater than his test score indicated.

In summary of this section, in the year and a half since he was last tested Wade showed better than a two-year growth in reading skills, although he remains presently instructional only at the third level. In arithmetical computation, Wade's grade score of 5.0 showed an increase of about a year and a half, with indications that his actual skill may be as much as a year higher.

Emotional Status: The House-Tree-Persons Test, The Blacky Pictures, Thematic Apperception Test, and Rorschach were repeated.

The overall personality organization in 1962 appeared to be "weighted on the introversive, imaginal side, but in a productively constricted manner. . . . The capacity for affective expression existed, but except in certain circumstances was held in rigid check." The present profile showed changes in the direction of increased aggressive strivings, a greater ease of affective expression in an adaptive context, and increased productive energies.

Overall reality testing remained within acceptable limits. Cognitive approach to the environment, however, stayed fairly rigid. Wade still tended to view the environment in superficially organized fashion, but interest in discrete details appeared to be increasing.

His impulses, in particular, appeared to be under better control than in 1962. Then it was reported ". . . . when Wade is reexposed to emotionally stressful situation on a prolonged basis, his adaptive handling of his impulses progressively deteriorates. Initially, when his hostility is provoked, he shows blocked, confused, and finally obsessionally doubt-laden thinking. But again he is able to call upon his isolating defenses and to recover, so that once more he can perceive in an accurate and conventional fashion. With the stress continuing, however, he can no longer isolate his affect. Instead, he regresses to the level of denial, together with evasively shallow and arbitrary thinking, with the result that his reality testing breaks down. Under prolonged stress, Wade can deal with his hostile impulses only by projection and by libidinal regression to a mixed anal-oral level. . . ."

At this session, when exposed to an emotionally stressful situation on a prolonged basis, he initially walled off his affect and so was able to see the world both in accurate and conventional fashion. As the emotional stress continued, however, he was compelled to acknowledge his affect, but did so in a relatively artificial, unintegrated, sometimes even stormy fashion. Ultimately, however, he could handle his affect in adaptive fashion, acknowledging his instinctual impulses while perceiving the environment in well-organized, integrated fashion. This implies a notable *strengthening of his ego. Libidinally* Wade also showed some advancement by reflecting predominantly masculine assertive strivings, although these were not too firmly fixed. In this connection it is of particular interest to contrast Wade's responses to Card X of the Rorschach.

1962

> "Well, you know, when kids drop things on the floor, you know, it makes a stain on the floor. That's what this looks like."
> (Inquiry). "It's the whole picture. It looks like they had maybe a bowl of soup or something, and accidentally they dropped it. Or like a waiter who carried stuff on trays, and accidentally they dropped it. (E. What about the color in this picture?) Yes, it helps a little but mostly it's the shape."

1964

> "It looks like on the bottom of the ocean—crabs, eels, octopuses, coral (a pink coral like you see in Florida), fishes crawling inside of holes. Stuff like that."
> (Inquiry). ". . . . the shape of crabs (side brown details) (Q.) look like they're walking. . . . the shape of eels (bottom green details) (Q.) eating some fish or something. . . . the shape of octopuses (upper blue details) (Q.) catching another fish (upper green details)—they eat fish, don't they? (E. What about the fishes crawling inside of holes?) There are no fishes except the ones being caught—(adds) these (bottom yellow details) are seals swimming around. . . ."

Wade's conflicts over his assertive impulses have been increasing, and much of the inattention, rebellion, and irritability he shows at times is expected in adolescence. However, much of his ongoing frustration and dissatisfaction seemed to stem from continuing feelings of defectiveness and inadequacy.

The expected adolescent recrudescence of Wade's sexual conflicts has been defended against by means of restriction, displacement, reaction formation, and, under much stimulation, projection and denial. Much of Wade's interest in his mother now has been displaced to his sister. Side by side with his increased rivalrous feelings toward his father, however, Wade shows an increased positive identification with him.

In brief, while Wade still showed the need for fairly rigid and guarded overall defensive armoring of a predominantly obsessive type, he has been handling his impulses generally in a more adaptive fashion, has become less disrupted by prolonged emotional stress, has matured some libidinally, and has evidenced more productive energy available—despite the impingement of increased biological and social pressures expected during adolescence.

Conclusions: In August, 1962, because of interrelated organic and emotional interferences, Wade was functioning intellectually at the borderline level, while indicating an average potential. Presently he is functioning in the average range, with some signs of a bright-normal potential. Difficulties with attention, concentration, and vocabulary continue though. Notwithstanding his good growth in reading skills, he is still a seriously retarded reader—presently instructional only at the third level. In arithmetical computation, his actual skill may be as much as a year higher than his 5.0 score indicates.

Emotionally Wade continues to need fairly rigid, primarily obsessive defenses, but is less vulnerable to prolonged exposure to emotional stress, and has more productive energies available.

All in all, the "total push" program to which Wade, once diagnosed as "mentally retarded," has been exposed over the past year and a half has clearly produced favorable results. However, he still has a considerable way to go before he can become an independently useful and productive person. To that end (and also because his age now precludes his continuing at Pathway) Wade should be enrolled in a school offering both vocational and remedial instruction, while his still evident emotional needs should be handled by continuing psychotherapy.

CASE HISTORY #9

Name: Alex Age: 10–11

Psychiatric Evaluation—July, 1951

Alex was hospitalized because of a 15-pound weight loss in the past three to four weeks, poor appetite, and stomach pain. According to the history given by the mother, he had an attack of flu about a month prior to admission and a streptococcic throat about five days before admission. Thus far investigation of his physical condition has not resulted in any positive findings. The patient stated that he could not eat at home because of stomach pains, but since going into the hospital he has experienced no pains and has eaten well. Prior to developing pain in his stomach, he had pains in his left leg, but these apparently responded to a white salve that the doctor had given his mother for massaging his leg.

Alex was over-talkative and imitative in his behavior in the playroom. He spoke freely about his relationship with the boy next door, who teased him, and whom he in turn teased, so that the boy's father eventually spanked him severely. He also discussed rather freely his use of a stomach ache to stay home from school, but the Mother Superior had seen him playing and had confronted him with truancy. Alex maintained that the Sisters picked little boys up by their heels and dropped them on their heads. He also voiced other fears, such as of being kidnapped, and how terrible it must have been for the man who recently had an accident in which both legs were cut off. The patient seemed to have many underlying feelings of guilt for which he sought punishment. This could explain in part his ingratiating attitude towards adults and also his overt fears of them. He also seemed to express many ideas which could be interpreted as castration anxiety. While there appeared to be no physical disease present, and even if some physical illness should be discovered in the future, the patient appeared to have marked feelings of guilt which presumably could be resolved under psychiatric treatment. The diagnostic impression is that of conversion hysteria.

(The patient was then referred for psychological evaluation to determine if he seemed to be a good candidate for psychiatric treatment.)

Psychological Evaluation

Alex presented himself as a thin, quiet lad, initially somewhat fearful and obsequious in manner. His speech was euphemistic and at times stilted. During the examination he was most cooperative and put forth much effort. Challenge stimulated him. He showed no overt upset while responding to the Rorschach, but in the midst of the House-Tree-Person post-drawing interrogation he had a paranoid-like outburst in which he accused the examiner of trying to get him to say the wrong thing. Then he suddenly returned to his obsequiousness.

Intellectually he functioned in the average range with a WISC verbal IQ of 94, a nonverbal IQ of 96, and an overall IQ of 94. Verbally he functioned at an efficient level, with some difficulty in attention and sustained concentration. Nonverbally he showed especially good ability to plan ahead and to predict the sequence of social events from initial observations. However, sustained attention and concentration were low under pressure of time. On the block design test there was difficulty in the analytic-synthetic type of abstract reasoning and in angulation. This could be indicative of a disturbance in laterality or of an insidious organic involvement.

Basic personality structure was healthy. There was good balance between inner creativity and immature fantasy. Striving was not in excess of capability. Ego functioning was good; his world well structured in terms of reality. There also was sensitivity to the environment and the needs of others. He was not stereotyped in thinking and showed a variety of interests. Although Alex tended to cling to the mundane and socially accepted aspects of the environment, at times he did structure the environment in terms of his inner creativity. Only his insecurity and fearfulness stood out as deviant. While highly stimulated emotionally, he was afraid to express emotions overtly. His complete lack of emotional response, especially in view of his receptivity to affective stimulation, was abnormal for his age.

Much insecurity was shown in regard to the home. Alex did not regard it warmly and was not sure what it held in store for him. It did not offer him all the protection he wanted.

Alex sought satisfaction through interaction with other people, but although this was important to him, the rewards were not adequate, for he relied excessively on fantasy for satisfaction. Nevertheless, that was not adequate either, because he was painfully aware that it was fantasy and not reality, and basic security remained anxiety ridden.

In fantasy he sought identification with the masculine and aggressive. For example, his initial percept on the Rorschach was that of saloon doors, identifying with the rough-and-ready romance of the Old West. This highly personalized response indicated a deep-seated wish fulfillment. The person he drew also showed this. It was a boy "hollering at somebody" who "musta got him mad. . . mighta hit him or teased him." The figure showed much oral aggression and potentially aggressive hands. Yet it was off balance and incapable of executing aggression. Indeed, the feet were incapable of support and were poised for flight. Although this indicated insecurity and fear of aggression from others, it also indicated a wish to be aggressive and fight back. The manifest oral aggression appeared to be intellectualized and expressed only in verbalization.

Interestingly, after the examination Alex expressed intense thirst and drank deeply. On the Rorschach his response to Card III concerned two crooks stealing water. This again was a highly personalized response. It might have been only a reflection of the thirst he felt, or it might also have had much deeper significance, possibly related to the aforementioned oral disturbance.

Alex also showed inner conflict regarding the dominant male figure. On Card IV of the Rorschach he saw a pair of shoes with heels and soles, denoting oppression. Between the shoes he saw a dragon's head (in the phallic area) with points on it. This again represents fear of aggression. Alex also was preoccupied with the female form and with interaction with females. How extensive was his fantasy concerning sexuality cannot be said on the basis of the Rorschach. At least there was no indication of obsessive thinking or pathological ideation in this area. The mother figure, subordinated to subhuman form ("two dogs in dresses") was regarded disdainfully and with antagonism.

In summary, Alex functioned quite efficiently in the normal intellectual range, with some emotional interference. His potential most likely was somewhat higher. Basic personality structure and ego functions were sound. However, organic involvement could be present.

The only disturbance was insecurity and fear of others being aggressive toward him, with resultant fear of overtly expressing emotion, especially aggressive retaliation. There was oral aggression expressed verbally and/or in fantasy.

While his need to conform, his obsequiousness, his obsessive need to structure interpersonal relationships could be the beginning of a compulsive character, personality in general was quite healthy. While there was evidence of emotional disturbance, it was not extensive or intensive enough to be very disrupting. Prognosis for therapy appears good in view of his good inner creativity, ability to express fantasy under permissive conditions, need to relate to people, proneness to verbalize aggression, and healthy ego function.

Psychological Test Data

WECHSLER INTELLIGENCE SCALE FOR CHILDREN

VERBAL TESTS	SCALED SCORE	NONVERBAL TESTS	SCALED SCORE
Information	9	Picture Completion	10
Comprehension	9	Picture Arrangement	14
Arithmetic	8	Block Design	8
Similarities	10	Object Assembly	9
Vocabulary	10	Coding	6
Digit Span	8		

1. INFORMATION	Score 1 or 0		Score 1 or 0		Score 1 or 0
1. Ears		11. Season—Year	1	21. Pounds—Ton	
2. Finger		12. Color—Rubies	0	22. Capital—Greece	
3. Legs		13. Sun—Set	1	23. Turpentine	
4. Animal—Milk	1	14. Stomach hold the food	0	24. New York—Chicago	
5. Water—Boil	1	15. Oil—Float	0	25. Labor Day	
6. Store—Sugar	1	16. Romeo—Juliet	0	26. South Pole	
7. Pennies	1	17. Fourth—July Anniversary of either city hall or I forgot the name of the place	0	27. Barometer	
8. Days—Week	1	18. C.O.D.	0	28. Hieroglyphic	
9. Discoverer—America	1	19. American—Man 5'6"	0	29. Genghis Khan	
10. Things—Dozen	1	20. Chile		30. Lien	
					12

2. COMPREHENSION	Score 2, 1 or 0
1. Cut—Finger Put mercurochrome or a bandaid on it.	2
2. Lose—Balls (Dolls) You would have to pay for it or give him something to make up for it.	2
3. Loaf—Bread Go to another store to get it.	2
4. Fight If he starts to fight, I'll fight with him.	0
5. Train—Track Holler to the engineer and tell him that the tract is broke.	2
6. House—Brick It burns faster than brick	1
7. Criminals For the crime they committed - to pay up for what they done	1
8. Women—Children They're the ones the man would save - his wife and child	0
9. Bills—Check When you send bills by cash, the wrong person might open it, but by check, he can't cash it.	1
10. Charity—Beggar Give to a beggar. Q. He might help you later on.	0
11. Government—Examinations I don't know.	0
12. Cotton—Fiber I don't know.	0
13. Senators	
14. Promise—Kept	
	11

3. ARITHMETIC			
Problem	Response	Time	Score 1 or 0
1. 45"			
2. 45"			
3. 45"			
4. 30"	2		1
5. 30"	6		1
6. 30"	14		1
7. 30"	7		1
8. 30"	21¢		1
9. 30"	I don't know		0
10. 30"	12 or	11	0
11. 30"	I don't know		0
12. 60"			
13. 30"			
14. 60"			
15. 120"			
16. 120"			
			8

4. SIMILARITIES	Score 1 or 0
1. Lemons—Sugar	
2. Walk—Throw	
3. Boys—Girls	
4. Knife—Glass	
	Score 2, 1 or 0
5. Plum—Peach They have the same kind of seeds, only one's smaller	0
6. Cat—Mouse Both an animal.	2
7. Beer—Wine Stuff big people drink	1
8. Piano—Violin Instrument	1
9. Paper—Coal Burn	1
10. Pound—Yard What people grow stuff in	0
11. Scissors—Copper Pan I don't know	0
12. Mountain—Lake A lake runs through a mountain	0
13. Salt—Water Both are white	0
14. Liberty—Justice	
15. First—Last	
16. 49—121	
	9

SUPPLEMENTARY TESTS

DIGIT SPAN

Digits Forward	Score (Circle)	Digits Backward	Score (Circle)
3-8-6 6-1-2	[✓ 3] 3	2-5 6-3	2 2
3-4-1-7 6-1-5-8	[✓ 4] 4	5-7-4 2-5-9	[✓ 3] 3
8-4-2-3-9 5-2-1-8-6	5 [✓ 5]	7-2-9-6 8-4-9-3	4 4
3-8-9-1-7-4 7-9-6-4-8-3	6 6	4-1-3-5-7 9-7-8-5-2	5 5
5-1-7-4-2-3-8 9-8-5-2-1-6-3	7 7	1-6-5-2-9-8 3-6-7-1-9-4	6 6
1-6-4-5-9-7-6-3 2-9-7-6-3-1-5-4	8 8	8-5-9-2-3-4-2 4-5-7-9-2-8-1	7 7
5-3-8-7-1-2-4-6-9 4-2-6-9-1-7-8-3-5	9 9	6-9-1-6-3-2-5-8 3-1-7-9-5-4-8-2	8 8

F 5 + B 3 = 8
Highest numbers circled

MAZES

Maze	Max. Errors	Errors	Score
A. 30"	2		0 1 2
B. 30"	2		0 1 2
C. 30"	2		0 1 2
1. 30"	3		0 1 2 3
2. 45"	3		0 1 2 3
3. 60"	5		0 1 2 3
4. 120"	6		0 1 2 3
5. 120"	8		0 1 2 3

Notes:

	Score 2 or 0	5. VOCABULARY
1. Bicycle	2	Like a motor bike or cycle - 2 wheels, and fenders of tin - you peddle it.
2. Knife	2	A thing that is mostly used in homes - made of iron. People use it to cut.
3. Hat	2	Something to wear.
4. Letter	2	What people write when they want to tell somebody something
5. Umbrella	2	It kept you from the rain
	Score 2, 1 or 0	
6. Cushion	2	That you sit on
7. Nail	2	To bang into wood
8. Donkey	2	People ride on. Q A animal
9. Fur	2	What people wear to keep them warm - tooken from a bear or other animal
10. Diamond	2	People put it in rings Q. People like it and get lots of money on it
11. Join	1	Going away to some place Q. You belong to the club
12. Spade	1	In cards
13. Sword	2	People used it in olden times to sword fight. It is iron
14. Nuisance	2	You get on somebody's nerves
15. Brave	1	You went near a lion and killed him
16. Nonsense	1	Stop being so silly
17. Hero	2	Somebody who was fighting on the battlefield and won the fight
18. Gamble	2	People who go and play for money
19. Nitroglycerine	0	I don't know
20. Microscope	2	Doctors use it for looking at germs
21. Shilling	1	A coin Q. When they worked for the king
22. Fable	0	I don't know
23. Belfry	0	I don't know
24. Espionage	0	I don't know
25. Stanza	0	I don't know
26. Seclude	0	I don't know
27. Spangle		
28. Hara-Kiri		
29. Recede		
30. Affliction		
31. Ballast		
32. Catacomb		
33. Imminent		
34. Mantis		
35. Vesper		
36. Aseptic		
37. Chattel		
38. Dilatory		
39. Flout		
40. Traduce		
	35	

6. PICTURE COMPLETION	Score 1 or 0
1. Comb	1
2. Table a chair - a drawer	0
3. Fox	1
4. Girl	1
5. Cat	1
6. Door	1
7. Hand	1
8. Card	1
9. Scissors	1
10. Goat	0
11. Fish	0
12. Screw	1
13. Fly	1
14. Rooster	1
15. Profile	0
16. Thermometer a nail for it to hang up	0
17. Hat	0
18. Umbrella	0
19. Cow	
20. House	
	11

7. PICTURE ARRANGEMENT

Arrangement		Time	Order	Score					
A. Dog	75"	1 2		0	1 ABC	2 ABC			
B. Mother	75"			0	1 OYT	2 TOY			
C. Train	60"			0	1 IR GN	2 IRGN			
D. Scale	45"			0	2 ABC				
(Fight)									
1. Fire	45"	13"	fire	0	4	11-15 [✓ 5]	6-10 6	1-5 7	FIRE
2. Burglar	45"	12"	thug	0	4	11-15 [✓ 5]	6-10 6	1-5 7	THUG
3. Farmer	45"	10"	qrst	0	4	11-15 5	6-10 [✓ 6]	1-5 7	QRST or SQRT
4. Picnic	45"	15"	efgh	0	4	11-15 [✓ 5]	6-10 6	1-5 7	EFGH or EFHG
5. Sleeper	60"	15"	eprcy	[✓ 0]	4	16-20 5	11-15 6	1-10 7	PERCY
6. Gardener	75"	41"	fsiher	0	[✓ 4]	21-30 5	16-20 6	1-15 7	FISHER or FSIHER
7. Rain	75"	21"	master	0 2 MSTEAR ASTEMR	4	21-30 [✓ 5]	16-20 6	1-15 7	MASTER
									38

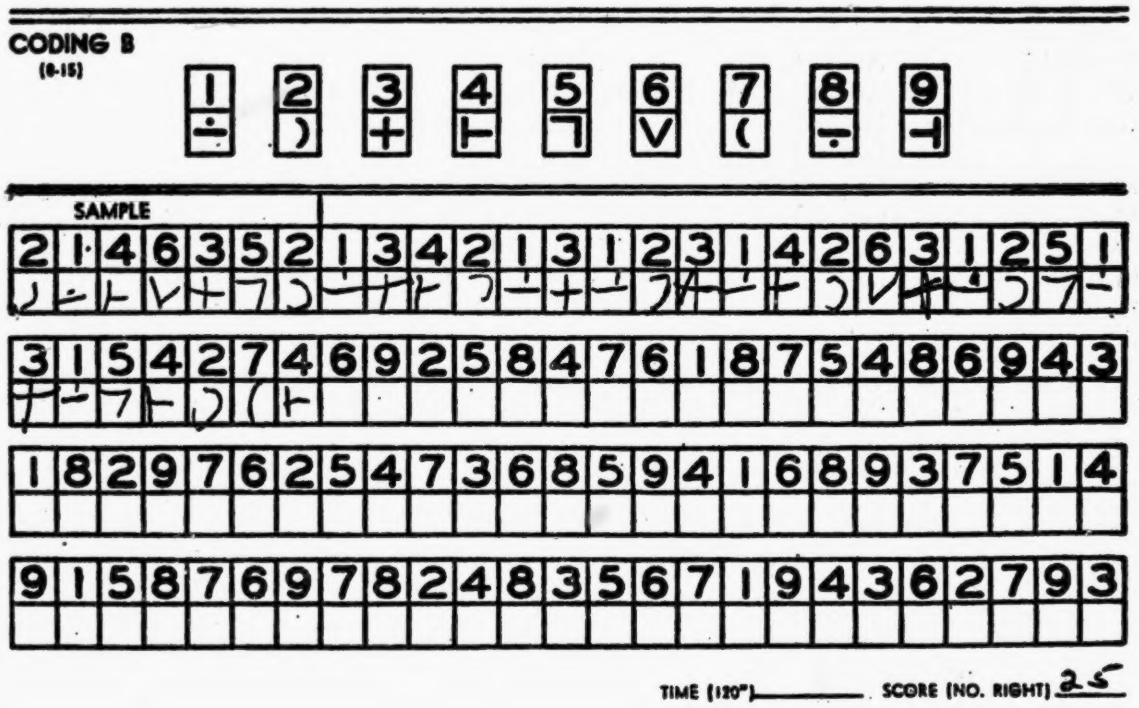
9. OBJECT ASSEMBLY

Object		Time	Score									
Manikin	120"	24"	0	1	2	3	21-120 [✓ 4]	16-20 5	11-15 6	1-10 7		
Horse	180"	51"	0	1	2	3	4	5	31-180 [✓ 6]	21-30 7	16-20 8	1-15 9
Face	180"	180"+	0	1	2	3	4	[✓ 5]	71-180 6	46-70 7	36-45 8	1-35 9
Auto	180"	110"	0	1	2	3	4	[✓ 5]	46-180 6	31-45 7	26-30 8	1-25 9
												20

8. BLOCK DESIGN

Design		Time	Pass-Fail	Score				
A.	45"	1		2				
		2		0 1				
B.	45"	1		2				
		2		0 1				
C.	45"	1		[✓ 0]				
		2		0 1				
1.	75"	75"+	0	[✓ 0]	21-75 4	16-20 5	11-15 6	1-10 7
2.	75"	40"	+	0	21-75 [✓ 4]	16-20 5	11-15 6	1-10 7
3.	75"	75"+	0	[✓ 0]	26-75 4	21-25 5	16-20 6	1-15 7
4.	75"	75"+	0	[✓ 0]	21-75 4	16-20 5	11-15 6	1-10 7
5.	150"			0	66-150 4	46-65 5	36-45 6	1-35 7
6.	150"			0	91-150 4	66-90 5	56-65 6	1-55 7
7.	150"			0	91-150 4	66-90 5	56-65 6	1-55 7

Notes: 8. Failures because of consistent difficulty in angulation.



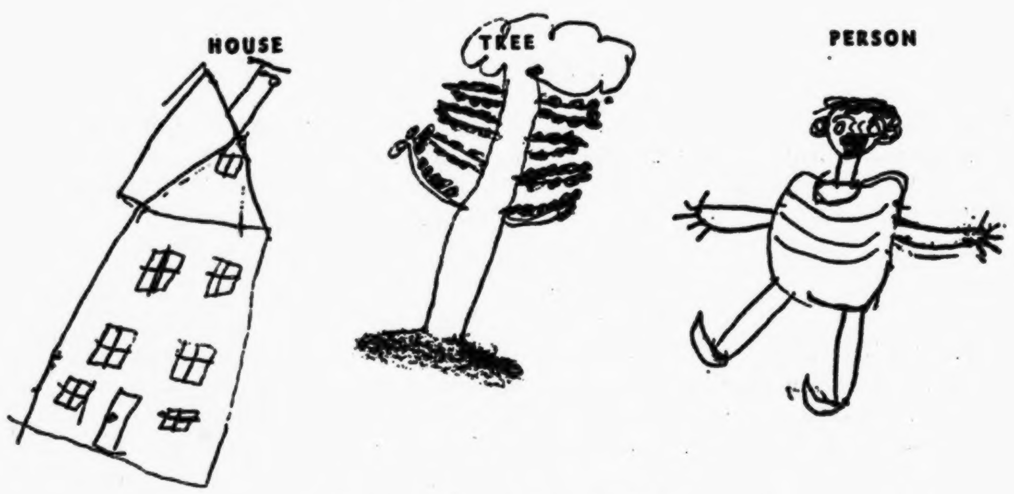
CODING B
(8-15)

1	2	3	4	5	6	7	8	9
÷	)	+	⊢	┐	V	(	⨪	⊣

SAMPLE

2	1	4	6	3	5	2	1	3	4	2	1	3	1	2	3	1	4	2	6	3	1	2	5	1
3	1	5	4	2	7	4	6	9	2	5	8	4	7	6	1	8	7	5	4	8	6	9	4	3
1	8	2	9	7	6	2	5	4	7	3	6	8	5	9	4	1	6	8	9	3	7	5	1	4
9	1	5	8	7	6	9	7	8	2	4	8	3	5	6	7	1	9	4	3	6	2	7	9	3

TIME (120") ________ SCORE (NO. RIGHT) 25



House - Tree - Person Test

RORSCHACH PROTOCOL

R=15+1
W= 6 (40%)
D= 9 (60%)

M=1
M.cF=1
FM=2 (1—)
FM.FC′=1
Fm.Fc=1
F=9

A =6 } 47%
Ad =1 }
H =2
Hd =1
Obj =1
Cg =1
Pl =1
Fd =1

P =4
0 =2

W : M
=5 : 2
M : ΣC
=2 : 0
=4 : 3

CCR=40%

60 F% 100
89 F+% 87

S.C.	C.C.
10	7
35	5
2	8
25	8
17	3
Av. 17.8″	6.2″

CARD I

	FREE ASSOCIATION	INQUIRY
10″	1) It looks like one of them two doors you open like this (gestures), used in olden times. W F+ Obj 0+	1) Doors on a beer saloon, and they go back and forth. Q. Closed. Q. They got the same shaped things as these.
	2) It looks like two people dancing here. D M+ H	2) (D2) Two women in dresses. Q. (Points) Their foot (D6), and their dress hangs down. The side (D7) is their arm.
p.c.d. 59″		1) A person in the center (D4). Q. A woman. Q. Her body and legs. (D F Hd)

CARD II

	FREE ASSOCIATION	INQUIRY
7″	1) It looks like two cows—it's shaped like a hoof right there. W F— A	1) If you bent them together, they'd look like a cow. (Hoof + D4, head + D2 viewed sideways)
p.c.d. 37″		

CARD III

	FREE ASSOCIATION	INQUIRY
5′	1) It looks like two men. The way they're bending over looks like they're taking water. That's the water there, and these are the pails. W M+.cF H P	1) When you look at water when the moon's flashing on it, it looks like that (D8). Q. Two crooks, I think. Q. The way that hat goes (the commonly-seen "nose" on D6 is perceived as a hat brim pulled down in front).

CARD IV

I don't know. That don't remind me of nothing.	
35″ 1) This looks like a dragon's head down there. D F+ Ad	1) (D1) Q. It's got points like that.
2) This looks like a pair of shoes down there. D F+ Cg	2) (D2) Q. It's got a heel and sole.
p.c.d. 59″	

CARD V

2″ 1) A bat—bat wings go out like that. W FM.FC′+ A P	1) It looks like he's flying away. Q. A butterfly is yellow and this is black.
p.c.d. 21″	

CARD VI

It don't remind me of nothing.	
25″V 1) Two gingerbread men hanging on a hook. W̸ Fm.Fc+ Fd 0+	1) Q. They're shaped like gingerbread boys. Q. Maybe she hanged them up to cool off. (Head=top of inverted D4, arm=D9, hook=D2).
p.c.d. 39″	

CARD VII

It don't remind me of nothing.	
17″ 1) It looks like two dogs in dresses. W F+ A	1) (Ear=D5, paw=Dd 21)
p.c.d. 33″	

CARD VIII

8″ 1) It looks like two tigers climbing up this way. D FM+ A P	1) (D1)
p.c.d. 25″	

CARD IX

8″ 1) Trees D F+ Pl	1) (D1) Q. Shaped like trees.
2) Two people's heads. D F+ Hd	2) (D4) A man with a mustache.
p.c.d. 21″	

CARD X

3″	1) This looks like a spider. D F+ A P	1) (D1) Q. All their legs.
	2) These look like two spiders. D FM— A	2) (D8) Q. Shaped like spiders. They're standing up against a tree.
	3) This looks like a flower. D F+ Pl	3) D15) Q. Shape.
p.c.d. 25″		

Post Mortem

Because the indications of possible organic pathology in the psychological findings were not emphasized, a request for neurological examination was not pressed. Alex died within three months of the psychological evaluation. The following is the autopsy report.

> *External Examination*: The body is that of an 11-year-old white boy, markedly undernourished, with prominent ribs and a scaphoid abdomen. There was moderate pallor throughout, a marked cyanosis of the nailbeds, and moderate cyanosis of the lips. On inspecting the lower palpebral conjuctiva, pinpoint hemorrhages were noted bilaterally. There was no edema, but the left knee was larger than the right; and on aspiration 6 cc of straw-colored fluid was obtained. This fluid had a specific gravity of 1.008, one to two red blood cells and two to three white blood cells per cubic mm. No coagulation of this fluid was noted in six hours. The liver was not palpable by external examination. There was no clubbing. No other petechiae were noted. The usual "Y-shaped" autopsy incision was made.
>
> *Internal Examination*: There was no fluid in either pleural cavity. In the pericardial cavity there was about 50 cc of light-yellow fluid with specific gravity of 1.005, two to three red blood cells and five to six white blood cells per cubic mm. This fluid did not coagulate. The diaphragms appeared normal.
>
> *Blood Vessels*:
>
> *Aorta*: The aorta appeared normal (see under description of brain).
>
> *Heart*: The heart weighed 220 gms. It appeared moderately hypertrophied in general. There was some slight enlargement of all chambers. The tricuspid valve measured 8 cms; aortic valve, 5.5 cms; mitral valve, 7.3 cms; pulmonic valve, 4.5 cms; right ventricular wall, 4 mms; left ventricular wall, 13 mms. The pulmonic tricuspid and mitral valves appeared normal. The right and left ventricle musculature appeared normal. In the aortic valve, the left coronary cusp was smaller than the other two cusps, and the septum dividing it from the other cusps was composed of grayish-green necrotic, thickened vegetations which extended beyond 2 cms from the valve. Beneath the non-coronary cusps, and overlying the aortic valve surface of the mitral valve were some vegetations. On staining, these vegetations showed numerous gram-positive cocci. The coronary vessels were normal.
>
> *Lungs*: The right lung weighed 300 gms, the left, 260 gms. The trachea, pulmonary tree, and pulmonary arteries appeared normal. In the lungs the upper and right middle lobes were crepitant and patent. The basalar portions

of both lower lobes were moderately congested. The hilar lymph nodes were noted and were anthracotic but otherwise not abnormal.

Spleen: The esophagus was normal. In the cardiac region of the stomach, there was a diverticulum measuring 3 cms in diameter. A diverticulum also was noted in the region of the transverse and descending colon. The stomach, pylorus, duodenum, and small intestine were otherwise normal. The appendix appeared normal.

Liver: The liver weighed 1200 gms and, on section, was markedly congested. The liver was markedly enlarged, extending about three fingers below the costal margin.

Gall Bladder: The gall bladder appeared normal, and the duct was patent. It contained green bile. On section, the wall was normal.

Pancreas: The pancreas appeared normal.

Adrenals: The adrenals appeared normal.

Kidneys: The capsule of the kidneys stripped with ease. The right kidney weighed 110 gms, the left kidney, 160 gms. On sectioning, both kidneys showed minimal congestion, but more in the medullae. In the left kidney, near one end, there was a flat yellow depressed area measuring 2 x 1 cms. On section, this appeared to be firm and wedge-shaped, suggesting an old infarct. Otherwise the kidneys and ureters were not remarkable.

Urinary Bladder: The urinary bladder contained about 200 cc of urine and was otherwise not remarkable.

G.U. Tract: The g.u. tract was normal.

Prostate: The prostate was normal.

Lymph Nodes: The lymph nodes were normal.

Bone Marrow: The bone marrow was red.

Brain: The brain weighed 1600 gms. In the left temporal lobe, there was a large clot measuring about the size of a pear, suggesting marked hemorrhage. The base of the brain, especially on the left in the region of the middle cerebral artery, was bloody. This was subarachnoid in location. On sectioning the brain after fixation, on the inferior medial aspect of the left temporal lobe was a vessel which had assumed an aneurismal configuration with a lumen measuring 1 x 0.5 cm. Surrounding the vessels there was hemorrhage into the left temporal lobe. No other abnormality was noted in the brain on sectioning. The pituitary appeared normal.

Clinical Diagnosis: Cerebral-vascular accident. Autopsied. Death in this 11-year old white male is attributed to left temporal lobe hemorrhage, secondary to rupture of a mycotic aneurism of the left middle cerebral artery, associated with subacute bacterial endocarditis of the aortic valve, superimposed on chronic rheumatic valvulitis.

CASE HISTORY #10

Name: Tyson Age: 9-2

Psychodiagnostic Evaluation—May, 1962

Presenting Problem: Tyson has been described as an emotionally disturbed, brain-damaged child. He was examined for possible admission to The Pathway School.

History: Information was obtained from the parents, who are in their middle 30's. In addition to the patient, they have four children ranging in age from 2 to 12 years.

During her pregnancy with Tyson, mother had a threatened abortion at three months and a virus pneumonia at five months. He was born three weeks ahead of schedule after an induced labor of four hours. Mother believes that the induced labor was for the doctor's convenience and that instruments were used. The hospital reports no sucking or respiratory problems, but on the second postnatal day mother was told that his body and limbs "jumped and quivered." This stopped when Tyson was about 10 days old.

He was breast-fed, took solid foods well, and was always a good eater. He always slept well, but was an early riser.

When held as an infant, he would "bounce and jump all the time." At 4 months he kept his face turned to the left, but would turn to the right when toys were tied to that side of his crib. He tried to sit up at 6 or 7 months, but could not balance himself. He sat without support at 9 months, walked holding on at 19 months, and independently at 25 months. He had an odd, scissors-like gait and fell frequently. Until 3 years old, he received physical therapy.

Tyson did not coo or babble much as an infant. By 2 years he had a few single words, and slowly added others. He was 5 before he used short sentences. At the time of this evaluation (1962) he mixed pronouns, manifested echolalic and repetitive speech, and could not organize his thoughts. He could not relate simple experiences, but his parents got information from him by asking a series of simple questions.

At 8 months of age he began having focal seizures in which he momentarily lost consciousness. By 11 months he was having as many as 36 seizures daily. Phenobarbital did not control them. He was then taken to an osteopathic physician who prescribed Phenobarbital and Tridione, together with cranial adjustments. After being hospitalized twice for pneumonia, his seizures stopped at 14 months. Medication was continued for a year or two and then stopped.

Toilet training was initiated when Tyson was almost 3 and was completed easily within a couple of months.

At age 4 he entered a class for cerebral palsied children which met three mornings a week. Because he could not keep up with the group intellectually, he was transferred to a class which met two afternoons a week. His teacher reported that initially it was quite difficult to get him to stay in the room, but after two and a half months he was able to participate in various activities for "relatively long periods of time." She also reported that he seldom used his right hand, even to assist the left. His walking and running were good. He was unable to dress himself but made attempts at undressing. His play was essentially individual. He made no attempts to play or relate with other children, but would communicate with adults when he felt the need for it.

After another six months in the same class the teacher reported:

> Tyson's adjustment has continued to improve, especially during the past few months. He still tends to wander out of the room, but responds to directions without active resistance, i.e., biting and hitting. He has begun to seek more adult attention and seems to relate more to the other children. His play is still predominantly individual, but he will join group activities without causing disturbance. He has begun attempting to use his right hand.

In September, 1961, when Tyson was 6½, he was placed in a day school for retarded children, because his teacher then felt that although he was doing well, the preschool program was not suited to his needs. She believed that Tyson belonged at least in a class for the educable retarded.

Parents described Tyson as affectionate and wanting love and attention. On the other hand, they were much concerned about his hostility toward other children, which he displayed by pulling their hair, grabbing them by the neck to pull them down, and by throwing the baby down and sitting on him. He was further described as strong-willed, not amenable to discipline, and especially difficult to control outside the home. When the family went visiting, Tyson would roam around while the parents engaged in conversation. He usually could be found turning light switches on and off, or flushing toilets, both of which activities seemed to fascinate him. If restrained, he screamed.

Tyson also liked to pretend he was someone else. Both at school and at home this reached the point where the parents told him. "You can pretend to be somebody else, but when we call you Tyson, you have to obey!" After that, he seemed less obsessed with the pretension than he did a year before. Other habits which have caused the parents some concern are masturbation and thumb sucking.

When left to his own devices at home, Tyson would play the piano—which he does very well with one hand—draw on a blackboard, or build with blocks. Recently he became interested in books and especially liked to hear familiar stories. Previously he had been too distractible to listen.

Social Development: On the Vineland Social Maturity Scale (information from the parents) Tyson obtained a Social Age of 3.8. His corresponding Social Quotient was 52, in the moderately retarded range. However, it was clear that his parents had not done all that they might to train and stimulate him to his fullest developmental potential.

Although his physical handicaps prevented him from engaging in certain simple activities (e.g., cutting with a scissors—an ability within the grasp of the average child between 2 and 3), Tyson could print simple words (an activity at the 5- to 6-year level). This suggested that he had an at least borderline developmental potential. He had not been trained to put on his coat (2- to 3-year level), although he could button it (3 to 4 level). Neither had he been taught to wash his hands unaided (3 to 4 level), wash his face unaided (4 to 5 level), care for himself completely at the toilet (4 to 5 level), or bathe himself with assistance (6 to 7 level), etc.

Previous Findings: When first examined psychologically, at age 4–11, Tyson's behavior was characterized by hyperactivity and hyperdistractibility. Nevertheless, an IQ of 55 was obtained. This agreed with the SQ of 58, and both were regarded as on the borderline of educability.

At his next examination, at 6–3, the same psychologist reported that the parents were concerned about Tyson's future schooling, particularly in view of his increased unhappiness, which seemed related to the increasing capabilities of his young sibling. Tyson had been demanding more attention, and had regressed somewhat in wanting to be fed and sitting down to urinate. The school was also disquieted by his pretending to be someone other than himself.

Formal testing was abandoned because of Tyson's investigating things in the room. He was more interested in doing things his own way than following directions, and showed a great deal of imagination and skill in the process.

When taken to a schoolroom, Tyson would go directly to the piano and begin to play tunes with his left hand in three-part harmony in a way which the psychologist thought "most 6-year-olds would not be able to do without a great deal of special training." Some of the same skill was shown in manipulating the record player and in building with blocks.

The psychologist regarded Tyson as a confusing child. He showed many of the same problems as when previously tested, although perhaps they were more under control, and his special talents contrasted with his generally retarded behavior. The psychologist regarded the latter as typical of severely emotionally disturbed children, but he did not feel that was necessarily true of Tyson.

When Tyson, at age 8-0, was examined as an applicant to a special school, the following was reported:

> Tyson is an attractive child, with a sweet and mild manner. He accepts affectionate overtures, responds to directions, can be deflected from obsessive preoccupations into more acceptable channels of behavior. He verbalizes freely, but more in response to internal pressure than to external stimuli. His verbal expression reflects his intense concern with isolated aspects of external reality. He becomes excited when he flushes the toilet, saying "water go round and round" in a high-pitched voice. He does respond to some questions about name and age, and even formulates questions that are meaningful and relevant ("I have to go now?"), etc. There is much about this boy that looks psychotic, but his reality contact and his interpersonal awareness, though fragmented, go far beyond that anticipated in an outright psychotic youngster. From time to time he looked up at me slyly with a flicker of amusement at some task I requested of him; and at other times he looked me directly in the face with obvious need for approval, and he seemed pleased when I did express such approval. I attempted to administer certain test items from standard psychological batteries, but it was difficult to establish with confidence any precise intellectual levels, because of Tyson's variability of attention and effort. Tyson did reproduce geometric patterns up to age level expectancy. He reproduced an excellent diamond, as well as square and circle. Upon request he made a human figure drawing which, according to Goodenough norms, scored at 5-3 years. I attempted some of the items from the Nebraska Test of Learning Aptitude (hearing norms). Tyson's best performance was on the pictorial identification subtest, at 7-6 years. His performance in some of the other items was so wavering, vacillating and random they could not be scored. Tyson worked well with blocks, but would not reproduce the pictured block patterns. He spontaneously constructed some elaborate and detailed block patterns, at least comparable to those which an average child of his age could do. He drew an excellent house for me, pointing out doors, windows and chimney and printed his name with entirely acceptable letter formation and sequence. I am confident on the basis of what I saw that Tyson is not essentially a mentally retarded child, although of course he functions far below expectancy in many ways. He is obviously a brain-damaged youngster and there are superimposed emotional features, but I feel that he could profit from a structured educational setting which operates towards impulse control, reinforces essential learning ability through patterned activities and allows for more wholesome peer relationships. Tyson would be acceptable to us as a student. . . .

In the Test Situation: Tyson was seen five times. He appeared initially as an attractive but apprehensive youngster who, at sight of the examiner, clutched at his penis and shrank back to his mother's side. When his initial fright had dissipated he was a bright-eyed, superficially friendly child whose movements were quick and agile, despite his dragging leg and limply dangling hand. In the testing situation he was initially hyperactive and hyperdistractible. These characteristics became less intense in the course of his several visits, but never were other than briefly quiescent. His speech was as described in the history. Some of his repetitive phrases involved anal and religious themes (e.g., "make a BM" and "Jesus came"). One of his favorite repetitive words was "spaghetti." Asked what this word might possibly signify to Tyson, his mother sighed and said he began to use it recently after he had squeezed a chick so hard its intestines had been exposed to view. It is also noteworthy that when the examiner's dog appeared, Tyson enthusiastically patted it while he felt himself observed, but when he thought no one was looking he promptly proceeded quite vigorously to pinch the dog. He also announced with great frequency that he wished to use the bathroom, that he was tired, and that his eye, head, ear, or other body part or organ hurt him. These complaints were apt to appear when Tyson was reluctant to tackle an assigned task. In general, he appeared to be seriously disturbed and difficult to test.

Diagnostic Teaching

Subsequent to the psychodiagnostic evaluation Tyson was seen at The Pathway School twice weekly for individual teaching and his parents were seen periodically for guidance in structuring their relationship with him. Despite the efforts both of the parents and the teacher, and despite some improvement on Tyson's part, there were times during both the teaching sessions and at home when Tyson was inaccessible. At such times he not only did not respond to the structuring in his usual manner, but frequency regressed to earlier types of behavioral disturbance. The latter included the screaming, kicking, and pinching which he had shown initially as frustration reactions.

Careful observation also indicated that the "staring spells" which he had been experiencing irregularly were becoming more frequent. The real possibility of petit mal seizures, increasing both in frequency and intensity, could not be ignored. Tyson was therefore referred for a neurological examination. The neurological report, dated July, 1962, stated: ". . . a good deal of the severity of his apparent problem at present may be due to a continuing grossly abnormal left cerebral hemisphere. His EEG is full of hyperactivity on that side and suggests the possibility of frequent mild seizures that probably go unrecognized by the family."

Neurosurgical Findings

Because Tyson's response to the structured program continued unchanged and because the seizure pattern did not improve, a pneumoencephalogram was made. It showed severe left cerebral hemiatrophy. A repeat EEG was again abnormal, showing left frontal slow waves and epileptogenic focus during sleep activity. Some right temporal lobe discharge was also noted, "but one cannot be certain that this is not a transmitted discharge." The clinical diagnosis was hemiatrophy with porencephaly. As a result, a left hemispherectomy was performed. The postoperative diagnosis was hemiatrophy with porencephaly with chronic subdural membrane.

The hospital's pathology laboratory issued the following report on the surgical specimens:

Gross Description: A. The first specimen consists of 3 grams of strandlike membranous tissue appearing mainly fibrous in character. B. The second part consists of a left cerebral hemisphere. The specimen is received in saline. It weighs 250 grams and measures 17x11x5 cm along its greatest dimensions. On external inspection, there is a central atrophic defect which measures 11x4 cm along its greatest dimensions. It replaces the entire opercular region. The surrounding gyri conform to anatomical pattern. They appear flattened with slight compression of intervening sulci. The overlying leptomeninges are smooth and transparent, showing markedly congested vessels beneath them. At the medial aspect, there is an oval central space measuring 16x6 cm along its two axes. It joins the retained parts of the ventricular spaces and is bounded laterally by the central atrophic defect. This takes the form of a vascular, thin, membranous structure which is finely nodulated and, along its margins, blends with cerebral convolutions. Incisions into the convolutions reveal focal hemorrhages. Inferiorly, the temporal lobe contains discolored zones of softening in the uncal region.

Microscopic Description: A. The membranous strands consist of arachnoid tissue surrounded by and enmeshed within fibroblasts. . . In some places, fibrous tissue has undergone thickening and hyalinization. Vascular spaces are present. There is a sparse non-specific, chronic inflammatory cell infiltrate. Numerous focal hemorrhages are present.

B. The cerebral cortex shows varying degrees of diminution of ganglion cell population, with advanced chronic cell disease evident among the surviving population, and marked glial astrocytic replacement. Away from the opercular region, the cortical architectural arrangement is well preserved, but near the defect, loss of architecture is marked. In the central part there is a thin band of gliosed atrophic cortex merging into nodular, neuromatous structures, possibly representing heterotopias.

Numerous focal hemorrhages can be seen at various parts of the specimen. In the temporal lobe, the discolored area observed grossly, consists of malacia in the state of microglial and astrocytic replacement, and apparent vascular proliferation, the overlying subarachnoid space being filled by numerous histiocytes.

Diagnosis: Porencephaly, (advanced).